

# REPORT

OF THE

MEDICAL AND HEALTH DEPARTMENTS,

KEDAH AND PERLIS.

FOR THE YEAR,

1930 A.D.

(30TH REJAB, 1348 TO 10TH SHA'ABAN, 1349 A.H.)

BY

DR. D. BRIDGES,

STATE SURGEON TO THE KEDAH GOVERNMENT.

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## I. ADMINISTRATION.

The principal appointments are:—

- The State Surgeon.
- The Senior Health Officer.
- Health Officer.
- 3 Medical Officers—one in each Centre.
- 1 Lady Medical Officer—stationed at Alor Star.
- Pathologist, attached to Health Office.
- 8 Assistant Surgeons.
- 3 European Nursing Sisters.
- 60 Dressers (including 5 Laboratory Assistants).
- 1 Qualified Dispenser—Store Keeper.
- 3 Asiatic Nurses.
- 7 Asiatic certified midwives (attendant class).
- 4 Vaccinators.
- 5 Health Inspectors attached to Health Office.
- 13 Health Inspectors attached to various Sanitary Boards.
- 1 Laboratory Assistant, Health Office.

## CHANGES IN THE STAFF.

Dr. D. Bridges, State Surgeon, left for England on 22nd February (23-9-48) on urgent private affairs. He returned and resumed duty on 16th October (23-5-49).

Dr. J. I. Baeza, Senior Health Officer, acted as State Surgeon, in addition to his own duties during Dr. Bridges' leave.

Dr. R. Walkingshaw, Medical Officer, Central Kedah, was transferred to the Straits Settlements on 18th January (17-8-49). He was succeeded by Dr. J. C. Carson from the Straits. Dr. Carson went on sick leave on 12th December (21-7-49) and Dr. L. F. Day, Medical Officer, North Kedah, was transferred to Central Kedah.

Dr. R. A. MacNab was seconded from the Straits as Medical Officer, North Kedah, on 15th December (24-7-49).

Dr. H. B. Dodds, Medical Officer, South Kedah, commenced his leave prior to retirement on 15th December (24-7-49).

Dr. R. C. Burgess was transferred from the Straits to fill the newly created post of Health Officer, Kedah, on 22nd August (27-3-49).

The new post of Pathologist was filled on 19th October (26-5-49) by the appointment of Dr. Mustapa bin Osman, a Kedah Malay, and a graduate of the Hong Kong University.

Miss V. D. Smith, Nursing Sister, was seconded to Kedah on 1st January (30-7-48) in place of Miss A. M. Belton who resigned on the termination of her agreement.

Miss M. E. Dow, Nursing Sister, retired on the termination of her agreement on 3rd November (11-6-49) and was succeeded by Miss A. L. Stewart from the Straits.

- 1 Dresser died.
- 1 Asiatic Nurse resigned.
- 1 Asiatic Nurse was appointed to fill the vacancy.
- 1 Health Inspector resigned.

RESULTS OF DRESSERS' AND HEALTH INSPECTORS'  
EXAMINATIONS.

		No. Candidates.	Results.
Dressers (June: Moharram, 1349) ..	..	I Grade 2	Passed 1.
		II Grade 2	Failed 1.
		III Grade 14	Passed 2. Passed 7. Failed 7.
Dressers (December: Rejab, 1349) ..	..	I Grade 4	Passed 3.
		II Grade 1	Failed 1.
		III Grade 5	Passed 3. Failed 2.

Total candidates 28, of whom 16 passed and 12 failed.

Out of this number 9 were from estates, of whom 5 passed.

	No. Candidates.	Results.
Health Inspectors (June: Moharram, 1349) ..	II Grade 2	Passed 2.

One Health Inspector appeared for the second time for the Royal Sanitary Institutes Diploma Examination and failed.

POPULATION.

The estimated population of Kedah, according to races is: Malays 287,652, Chinese 68,084, Indians 50,815, Europeans 404, Eurasians 163, others 9,170-- Total 416,288.

Appendix A gives the totals for the last 4 years.

Appendices B—H give details of births and deaths, and Appendix I shews the principal causes of deaths.

DISTRICTS.

For administrative purposes the State is divided into three districts: North Central and South.

North Kedah has an area of 1,549 square miles with an approximate population of 220,000. This area is mostly flat rice (paddy) land. The population for the most part is Malay.

Central Kedah has an area of 1,546 square miles with a population of approx. 132,000.

South Kedah has an area of 553 square miles, with a population of approx. 68,000.

The last two districts contain most of the rubber estates in Kedah and a large proportion of the population is South Indian.

MEDICAL INSTITUTIONS.

NORTH KEDAH.

Hospital, Alor Star .. .. ..	..	364	beds.
„ Langkawi Island .. .. ..	..	50	„
Out-door Dispensary, Alor Star Town ..			
„ „ Changloon.			

CENTRAL KEDAH.

Hospital, Sungai Patani .. .. ..	..	400	beds.
„ Kuala Ketil .. .. ..	..	150	„
„ Baling .. .. ..	..	28	„
Out-door Dispensary, Sik ..			
„ „ Yen.			

## SOUTH KEDAH.

Hospital, Kulim	..	..	..	260 beds.
„ Serdang	..	..	..	80 „
Out-door Dispensary, Bandar Bahru.				

Each Medical District is provided with a Motor Ambulance which does routine travelling dispensary work in the district visiting all Schools, villages and Police Stations en route. Enclosed map shews the area covered by out door dispensary.

The Prisons at Alor Star and Sungei Patani have each a sick ward. The sick ward attached to the Prison, Kulim, was closed in August, when that prison was abolished.

The Hospitals at Kuala Ketil and Serdang ceased to be Government Institutions on 30th June, when they were leased out to Estate Group Associations. These two hospitals were originally erected with the main object of serving the labourers on the rubber estates in their respective neighbourhoods. Estates are now required under the Health Board Enactment of 1346 A.H. to provide their own hospitals.

## BUILDINGS.

The following buildings were completed during the year:—

- 14 attendants' quarters, Hospital, Alor Star.
- Extension of Maternity Ward for 3rd class patients, Alor Star.
- 2 blocks of four dressers' quarters, Sungei Patani.
- 4 attendants' quarters, Sungei Patani.
- 2 blocks of Dressers' quarters, Kulim.
- 2 attendants' quarters, Langkawi.

The following works are postponed:—

Water borne sewage system for the three Central Hospitals, Quarters for Health Officer, Sungei Patani, Electric Washers for Hospitals, Alor Star and Sungei Patani.

The following works asked for have not been sanctioned:—

- New Mortuary, Hospital, Sungei Patani.
- Wire fence, Baling Hospital.
- Removal servants' quarters, Kulim, to new site.
- Motor Shed, State Surgeon's Office, Alor Star.
- 3 Clerks' quarters, Alor Star.

## FINANCIAL.

The Revenue for the financial year 1348 A.H. (9th June, 1929 to 28th May, 1930 A.D.) was as follows:—

	1348 A.H.	1347 A.H.
Medical	.. \$77,105.51	\$92,500.83
Health	.. 69.50	57.00

The decrease in the medical revenue is due to the fall in the number of paying patients from Estates on account of opening of Estate Group Hospitals.

## EXPENDITURE.

## MEDICAL BRANCH.

	1348 A.H.	1347 A.H.
Personal Emoluments	.. \$198,231.00	\$183,837.20
Other Charges	.. 250,202.23	268,019.89
Total	.. \$448,433.23	\$451,857.09

The increase under personal emoluments is due mainly to increments of salaries under Schemes. The decrease under other charges is due to fewer admissions to hospitals.

## HEALTH BRANCH.

		1348 A.H.	1347 A.H.
Personal Emoluments ..	..	\$18,419.39	\$21,356.80
Other Charges ..	..	18,108.62	17,431.99
		<hr/>	<hr/>
Total ..	..	\$36,528.01	\$38,788.79
		<hr/>	<hr/>

The actual expenditure on the whole Medical Department, after deducting revenue, was \$407,786 or 6.19% of the State Revenue.

## ORDINANCES.

An amendment to the Sanitary Board Enactment of 1334 A.H. was passed, giving powers to the Sanitary Boards to impose rates within their limits, subject to the approval of the State Council.

A Poisons Enactment was passed giving powers for the control of traffic in poisons.

## II. PUBLIC HEALTH.

## GENERAL.

As the Gregorian Calendar, for the purposes of Statistics, was adopted only from 1st January, 1930 A.D., it is not possible to compare the figures with those of 1929 A.D., comparisons are therefore made with the year 1347 A.H., which is the last period approximating 12 months for which figures are available.

During the year the health of the State was generally good, the death rate being lower and the birth rate higher than in 1347 A.H. The death rate was the lowest recorded since 1343 A.H. and the birth rate the highest ever recorded in Kedah.

Appendices A—I refer to Births and Deaths.

## COMMUNICABLE DISEASES.

*Malaria*: Malaria and fevers unspecified accounted for 2,446 deaths, which is much less than the number for 1347 A.H. when the figure was 3,328.

*Infantile Convulsions*: 2,707 deaths were recorded under this head, being the largest number due to any one disease. The figure for 1347 A.H. was 2,034. Many of these deaths from Convulsions were probably caused by Malaria, Ascaris, and digestive troubles.

*Cholera*: There was no cholera during the year.

*Small-pox*: The first case was reported in Central Kedah on 28-5-30. This case came from Penang. On 1-6-30 the second case was reported in another locality. In this instance it was discovered that a Sister had recently arrived from Malacca with the disease and died. As was to be expected, the disease was spread around the locality. 26 cases in all occurred in Central Kedah.

The disease was then carried from Central Kedah to North Kedah, where 3 cases occurred. In October 4 cases occurred in South Kedah. These were introduced in all probability from the Province Wellesley. In all there were 34 cases with 5 deaths.

Considering the fact that there has been small-pox in Penang and Province Wellesley during the whole year, and the people are continually moving from place to place, also that there had been a death from Small-pox in Central Kedah with the usual collection of friends, as is the native custom on these occasions, some days before the disease was notified, it is surprising that the outbreak was not more serious than it was.

The reason for this is largely on account of the Enactment in Kedah, providing for compulsory vaccinations in any gazetted area, of every one who has not been successfully vaccinated within 5 years. This enabled us to form an immune area along the border adjoining the Province Wellesley and around any case that occurred, and so effectively to isolate the infected area.

*Tropical Typhus*: Four cases were reported, including two from Dublin Estate. The diagnosis was confirmed by serological tests.

*Typhoid Fever:* 14 cases were reported including 9 from Estates. There were also 7 cases reported as Para Typhoid. These cases were scattered and no definite source of infection was discovered.

*Ankylostomiasis:* 1,276 deaths were registered under this heading, an increase of 122 as compared with 1347 A.H. Better facilities for diagnosis on Estates probably account for the increase in numbers. It is also probable that malaria was a contributory cause of death in many of the cases. Most Estates are now paying more attention to the prevention of this disease and next year a great improvement in the figures should be observed.

*Infantile Mortality:* The infantile death rate was 142.02 per mille which is higher than that of 1347 A.H., but lower than for any other complete year except 1342 A.H. Though the rate is still highest among Tamils, viz. 252.09—this rate compares favourably with 262.96 which was the figure for 1347 A.H. and is possibly due to improved curative and preventive measures on Estates.

The rates for Malays and Chinese were respectively 124.33 and 144.24 per mille as compared with 111.95 and 136.72 in 1347 A.H. Bad feeding, Ascaris and Malaria probably account for most infant deaths.

#### OFFICIALS.

The following table gives the Heath Statistics of Government Officials, other than Subordinates, in Kedah.

		European.	Native.
Number of officials resident ..	..	.. 76	72
Average number resident ..	..	.. 50.44	66.34
Total number on Sick list ..	..	.. 20	26
Total number of days on sick list ..	..	.. 325	136
Average daily number on sick list ..	..	.. .89	.37
Percentage of sick to average number resident ..	..	.. 26.31	36.11
Average number of days on sick list for each patient ..	..	.. 16.25	5.23
Average sick time to each resident ..	..	.. 6.44	2.05
Total number invalided ..	..	.. ..	1
Percentage of invalidings to total resident ..	..	.. ..	1.38
Total deaths ..	..	.. ..	..
Percentage of deaths to total resident ..	..	.. ..	..
Percentage of deaths to average number resident ..	..	.. ..	..
Number of cases of sickness contracted away from resident ..	..	.. ..	..

#### III. HYGIENE AND SANITATION.

Three meetings of the Anti-Malarial Board were held during the year.

Routine anti-malarial work was carried on in the Sanitary Board areas of Alor Star, Sungai Patani and Kulim, the three large towns in the State, and sub-soil drains were laid at Bukit Kayu Hitam, a border station where *Maculatus* was found to be breeding.

Drainage work at Pulau Langkawi was maintained, and incidence of malaria on the island was much less than in the previous year. 'A. Ludlovi and Umbrosus' are however still found in isolated places, and more extensive work will therefore have to be carried out.

Routine monthly surveys were carried out in these areas and on a number of estates. Surveys were also carried out at Padang Besar, around the quarantine station, on the Siamese boundary, where the actual anti-malarial work is done by the Federated Malay States Railways.

#### HEALTH ON ESTATES.

There is a large reduction in the incidence of malaria among estate labourers, as the result of anti-malarial work on most of the larger estates. As to general sanitation on estates, considerable improvements were effected, especially in Central Kedah, a number of protected wells and new latrines with open drain and septic tank system being provided. Depressed financial conditions rendered the carrying out of improvements difficult or impossible in many cases. In all 229 visits were made by the Senior Health Officer and his staff to estates. Appendices L—R give the returns of estate health.

## SCHOOLS.

There are 91 schools in Kedah.

				Boys.	Girls.
English	..	..	..	2	1
Vernacular	..	..	..	83	5
				—	—
			Total	.. 85	6
				—	—

Officers of the Health Branch visited 24 of the boys' schools and examined 2,374 pupils.

The Lady Medical Officer paid several visits to three of the Girls' schools and examined 92 children.

The travelling dispensaries paid routine visits to 45 schools and treated all sick children.

The prevailing disease among children is Dental Caries: intestinal worms and skin diseases are the other common ailments.

Appendix K shews the result of examinations conducted by the Health Staff and the Lady Medical Officer.

## QUARANTINE INSPECTION.

On account of a few cases of cholera, reported from Southern Siam, the country was gazetted "Suspected" on 15th May (16-12-48) and all passengers coming into Kedah by road, sea and rail were strictly examined. The restriction was raised on 15th September (21-4-49) when cases ceased to occur in Southern Siam.

The number of Railway passengers examined at the frontier Station, Padang Besar, during the year was:—

1st class	..	..	..	..	1,846
2nd „	..	..	..	..	3,025
3rd „	..	..	..	..	21,283
					—
			Total	.. 26,154	—
				—	—

There was one conviction during the year under Section 4 of the Quarantine Enactment, the defendant being fined \$10.

## VACCINATION.

Compulsory vaccination of all persons not vaccinated within 5 years, was ordered by the Government in the districts affected by smallpox, and a large number were vaccinated under this order.

The number vaccinated by Government vaccinators was 31,199.

Vaccinations done at the Hospitals and dispensaries numbered 15,698.

Statistics of those vaccinated by Health Inspectors and Estate Doctors are not available.

## PORT HEALTH WORK.

During the prevalence of Cholera in Southern Siam, all the vessels arriving in Kedah ports from Siam were examined.

#### IV. MATERNITY AND CHILD WELFARE.

In the whole State there were 243 deaths recorded as due to affections connected with child birth. This gives a percentage of 1.45 to total births. The number of still births amounted to 1,016 which are not counted as births. These figures cannot be taken as correct as the native reports any infant death that occurs within a few days of birth as 'born dead' and likewise any mother dying within 40 days of confinement, the period during which women are considered unclean, is reported as death from child birth.

394 cases under 'Pregnancy and its diseases' were treated in the various Government Hospitals. There were 30 deaths among these, giving a percentage of 7.61 to total treated.

Dr. (Mrs.) M. G. Brodie, a temporary officer, was in charge the whole year, and did good work, especially among the Malays, in spite of being handicapped in not knowing much of the language.

Her work was mostly out-door, the number of female indoor cases being small, as there are comparatively few Tamil women in North Kedah, and Chinese and Malay women do not come into Hospital if they can possibly avoid it. The following list shews cases attended to in Alor Star.

##### *Maternity Wards.*

###### *Inpatients.*

Malay	..	..	..	..	..	..	1
Chinese	..	..	..	..	..	..	23
Tamils	..	..	..	..	..	..	48
Others	..	..	..	..	..	..	14
						Total	.. 86
Still births	..	..	..	..	..	..	12
Twins	..	..	..	..	..	..	2 cases.
Abnormalities and forceps cases				..	..	..	12
Living babies	..	..	..	..	..	..	76

##### *First Class Ward.*

1 European was confined and a healthy baby the result.

##### *Out-door Maternity Cases.*

Malays	..	..	..	..	..	..	64
Chinese	..	..	..	..	..	..	4
Tamils	..	..	..	..	..	..	5
Others	..	..	..	..	..	..	2
						Total	.. 75
Still born	..	..	..	..	..	..	14
Twins	..	..	..	..	..	..	2 cases.
Healthy babies	..	..	..	..	..	..	64

Many of the fatal or complicated cases attended to would have been avoided or saved if the patient had attended before hand for ante-natal treatment; but it is not easy to make the native women recognise the importance of this.

The policy is to induce the Malays to adopt modern treatment in place of the crude and dangerous treatment of the Bidan or native midwife. The figures shew that though we have not yet persuaded them to come into hospital, we are gradually getting them to accept our treatment in their homes.

There are two Malay Certified midwives attached to the Alor Star Hospital who attend to outside cases, whenever called upon to do so, under the supervision of Lady Medical Officer.

Another Malay woman has been sent for training and it is hoped that she will obtain her certificate in 6 months' time: she will be stationed at Pulau Langkawi where modern methods are urgently required.

### INFANT WELFARE WORK.

This work is carried out among the Malays only and was started at the first centre in the nature of an experiment with funds raised by voluntary effort.

A Voluntary Committee was formed with H. H. the Regent of Kedah as President and it was agreed to carry on the organisation until the State Council<sup>1</sup> was satisfied that it was a work the Government was justified in undertaking. No additional staff was provided and no premises erected. H. H. the Regent lent a disused billiard room at Anak Bukit Gardens. The building was cleaned and painted at the expense of voluntary funds.

An opening ceremony was held to which all headmen were invited. The nature and aim of the work was explained and bills distributed freely among the people.

At the first session 132 babies were brought up, which was a very satisfactory start. The average attendance for the following 6 months, the period fixed by State Council, was over 50.

It was soon realised that the one Centre at Anak Bukit was not enough, as the distance from other Kampongs was too much to enable mothers to attend regularly. It was therefore decided towards the end of the year to open three other Centres at convenient spots about 5 miles apart. The people in other districts have asked that Centres be opened near them also, but at present it is impracticable to extend the work.

The sessions at the three extra centres are held at a Government Dispensary in the Town of Alor Star, in a Penghulu's (headman) house, and in a building lent once a month.

The following table gives the particulars of each centre during the year:—

Place	Session	1st Visits	Revisits	Total	Average attendance
Anak Bukit	23	961	120	1191	51
Langgar	2	...	...	95	475
T. Kechai	2	...	...	189	47
S. Perak	2	...	...	54	27

### V. HOSPITALS AND DISPENSARIES.

A total of 17,800 patients were treated in all Hospitals. The deaths numbered 1,155 giving a percentage of 6.48. 377 of the deaths occurred within 48 hours of admission; excluding these, the death-rate was 4.37 per cent.

The following table gives the number treated and deaths in hospitals for the past 5 complete years:—

Year	No. treated	Deaths	Percentage of deaths
1344 A.H. ...	21,336	1,503	7.04
1345 ...	21,472	1,841	8.57
1346 ...	24,432	1,987	8.13
1347 ...	19,121	1,506	7.87
1930 A.D. ...	17,800	1,155	6.48

Both the admissions and deaths shew a decrease, mainly due to reduction of labour on estates, and the opening of estate Group Hospitals.

The following return gives the number of Indoor Sick treated during the year in the various Government Hospitals:—

Hospital				No. treated	Deaths	Percentage of deaths
Alor Star	...	...	...	4,836	280	5.78
Sungei Patani	...	...	...	6,569	459	6.98
Kulim	...	...	...	3,642	231	6.34
Kuala Ketil	...	...	...	980	103	10.51
Serdang	...	...	...	815	51	6.25
Baling	...	...	...	367	12	3.26
Langkawi	...	...	...	298	19	6.37
PRISON SICK WARDS.						
Alor Star	...	...	...	195	...	...
Sungei Patani	...	...	...	94	...	...
Kulim	...	...	...	4	...	...
Total		...		17,800	1,155	6.48

The nationality of Indoor patients:—

			No. treated	Deaths	Percentage of deaths
Europeans	...	...	19	...	...
Eurasians	...	...	6	...	...
Chinese	...	...	6,951	453	6.51
Indians	...	...	9,463	653	6.79
Javanese	...	...	20	1	5.00
Malays	...	...	1,193	44	3.68
Japanese	...	...	1	...	...
Others	...	...	147	4	2.72
Total		...	17,800	1,155	6.48

The average daily number of indoor patients in Kedah Government Hospitals for the past 5 years was:—

1344 A.H.	..	..	..	..	..	975.23
1345 ,,	..	..	..	..	..	948.67
1346 ,,	..	..	..	..	..	1,002.94
1347 ,,	..	..	..	..	..	942.38
1930 A.D.	..	..	..	..	..	888.11

The reduction in indoor cases is due to the closing of the two District Hospitals in Central and South Kedah, also to the opening of Estate Group Hospitals.

## PREVAILING DISEASES—SICK INDOOR.

Diseases	1346 A.H.			1347 A.H.			1930 A.D.		
	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %	Cases	Deaths	Deaths %
Malaria ... ...	10,016	673	6.72	6,289	484	7.69	5,461	269	4.93
Dysentery, Amœbic ...	431	117	27.15	330	59	17.87	244	32	13.11
,, Bacillary ...	465	147	31.61	236	76	32.20	216	46	21.28
Venereal Diseases ...	733	2	.27	917	16	1.74	577	10	1.73
Respiratory Diseases (ex. Pulu. Tuber.)...	1,206	279	23.13	1,098	249	22.68	1,143	196	17.14
Pulmonary Tuber: ...	255	114	44.71	252	108	42.85	262	99	37.78
Ankylostomiasis ...	2,246	188	8.37	1,916	138	7.20	1,207	51	4.22
Ulcers ... ...	1,587	7	.44	1,419	2	.14	1,552	8	.51
Wounds & Injuries ...	920	8	.87	1,542	29	1.88	1,849	36	1.94
Other diseases ...	6,573	452	6.82	5,122	345	6.73	5,289	408	7.52
Total ...	24,432	1,987	8.13	19,121	1,506	7.87	17,800	1,155	6.48

The number admitted in all the important diseases shew a decrease, but this means nothing, as the most of the estates' sick are not now admitted to Government Hospitals.

The percentage of deaths, however, which shews a marked general decrease, and especially in malaria, Dysentery, lung diseases, and ankylostomiasis, is worthy of note, as it shews great improvement.

## MALARIA.

The number of blood-films examined for malaria in the various centres was as follows:—

		North	Central	South	Total
Benign Tertian ...	...	508	1,023	551	2,082
Malignant Tertian ...	...	200	983	918	2,101
Quartan ...	...	28	39	64	131
Mixed Infection ...	...	6	190	48	244
Negative ...	...	3,245	5,223	2,832	11,300
Total ...		3,987	7,458	4,413	15,858

In South Kedah the prevailing type is malignant malaria, in Central Kedah malignant and benign types are about equal, and in North Kedah the prevailing type is B.T. This is in keeping with the formation of the country. 279 lbs. of quinine were issued to Government Hospitals and Dispensaries during the year.

## PULMONARY TUBERCULOSIS.

			Cases.	Deaths.
1343 A.H.	..	..	..	225
1344 "	..	..	..	113
1345 "	..	..	..	150
1346 "	..	..	..	136
1347 "	..	..	..	114
1930 A.D.	..	..	..	108
			262	99

The death rate of 37.78 was the lowest recorded for any previous full year. Deaths from Tuberculosis in the whole State numbered 223 against 251 in 1347 A.H. and 235 in 1346 A.H.

14 cases received treatment in the Phthisis huts at Langkawi. Ten of these cases were discharged, 3 advanced cases died, and 1 absconded.

No improvement in the prevalence of this disease can be stated though the Hospital admissions shew a slight decrease. The value, however, of Langkawi as a Sanitorium is noticeable. Cases do remarkably well here, but the difficulty is to persuade patients to stay here long enough to obtain a complete cure.

#### DYSENTERY.

The death-rate under Amoebic Dysentery is the lowest for 6 years; and the rate for Bacillary Dysentery also shows a marked fall. This is probably accounted for by excluding the estate cases which were usually sent into hospital in a very advanced state.

#### VENEREAL DISEASES.

			Cases.	Deaths.
Gonorrhoea and Gon. Sequelae	..	..	283	5
Syphilis and Syph. Sequelae	..	..	232	5
Bubo	..	..	62	..
			—	—
Total	..	577	10	—
			—	—

There was a decrease of over 300 in the admissions. The importance of early treatment is gradually becoming recognised and we get more cases in the early stages than formerly.

Neo-Salvarsan injections for Syphilis and Yaws (Puru) in the State.

Year.					Injections.
1343 A.H.	..	..	..	..	5,995
1344 ,,	..	..	..	..	7,723
1345 ,,	..	..	..	..	8,653
1346 ,,	..	..	..	..	6,689
1347 ,,	..	..	..	..	12,218
1930 A.D.	..	..	..	..	11,935

Injections given during 1930 A.D. include 2,059 given by the Lady Medical Officer at various Welfare Centres. The majority of these injections were for puru: this disease is still very prevalent in certain districts.

#### ANKYLOSTOMIASIS.

1,207 cases and 51 deaths, shew a great improvement over previous years' figures.

#### MENTAL DISEASES.

200 Kedah patients were under treatment in the Mental Hospital, Tanjong Rambutan at the beginning of the year; 80 were admitted, 22 discharged as cured, 6 absconded, 17 died, and the number remaining at the end of the year was 235 including 182 males and 53 females.

The admissions for the last 5 years were as follows:—

1344 A.H.	..	..	..	..	..	..	57
1345 ,,	..	..	..	..	..	..	49
1346 ,,	..	..	..	..	..	..	72
1347 ,,	..	..	..	..	..	..	59
1930 A.D.	..	..	..	..	..	..	80

## LEPROSY.

			Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining
Pulau Jerajak and Jelutong	...	...	108	23	131	3	...	12	15	101
Pangkor Laut	...	...	8	2	10	1	...	...	1	8
Kedah Hospitals	...	...	4	49	53	3	37	3	4	6

The admissions to the Asylums during the last five years were as follows:—

1344 A.H.	..	..	..	..	..	..	..	..	21
1345	„	..	..	..	..	..	..	..	27
1346	„	..	..	..	..	..	..	..	20
1347	„	..	..	..	..	..	..	..	45
1930 A.D.	..	..	..	..	..	..	..	..	25

## OTHER INFECTIOUS DISEASES TREATED IN HOSPITALS.

			Cases.	Deaths.
Cerebro-Spinal Fever	..	..	..	1
Chickenpox	..	..	..	31
Dengue	..	..	..	2
Enteric Fever	..	..	..	12
Erysipelas	..	..	..	11
Hydrophobia	..	..	..	2
Influenza	..	..	..	84
Measles	..	..	..	25
Mumps	..	..	..	24
Phagedoena	..	..	..	3
Pyaemia	..	..	..	3
Pyrexia of uncertain origin	..	..	..	40
Rheumatism (Malarial or Syphilitic)	..	..	..	34
Septicaemia	..	..	..	8
Smallpox	..	..	..	3
Alastrim	..	..	..	1
Tetanus	..	..	..	5
Tuberculosis—General	..	..	..	10
Whooping cough	..	..	..	11
Yaws	..	..	..	22
Other infective Diseases	..	..	..	16

\* includes deaths of cases admitted for other diseases, but died of septicaemia.

## ANTI-RABIC TREATMENT.

91 cases were treated for dog bite. 58 of these were confirmed or suspected as bitten by rabid dogs and received anti-rabic serum injections.

Cases treated with anti-rabic vaccine, grouped according to Domicile and Nationality:—

Course	Nationality	Domicile			Total
		Kedah	Perlis	Kelantan	
Complete	Malay ...	3	4	3	10
	Chinese ...	9	...	...	9
	Indian ...	18	...	...	18
	European	18	...	...	18
	Eurasian	1	...	...	1
				Total ...	56
Incomplete	Indian ...	1	...	...	1
	Siamese	1	...	...	1
				Total ...	2
				Total treated ...	58

### RESULT OF TREATMENT.

Position of bite	I	II	III	IV	V	VI	Contacts	Total	No. of deaths during or after treatment
Limbs and Trunk unclothed	13	3	...	6	20	3	10	55	Nil
Limbs and Trunk through clothing	2	...	...	...	1	...	...	3	Nil

- (i) Cases bitten by animals proved rabid by Laboratory diagnosis.
- (ii) Cases bitten by animals certified as rabid: no Laboratory tests.
- (iii) Cases bitten by animals almost certainly rabid according to history.
- (iv) Cases of recent abrasions contaminated by saliva of proved rabid animals.
- (v) Cases bitten by animals untraceable.
- (vi) Cases with abrasions contaminated with saliva in which tests were negative.

### SURGICAL OPERATIONS.

135 operations under general anaesthetics were performed. 113 of this number were done by the Medical Officers at the three Central Hospitals and 22 operations were performed by the Assistant Surgeon, Langkawi.

Minor operations numbered 788.

### POST MORTEMS.

The number of post mortems performed at the various hospitals was 199, including 107 medico—legal and 92 pathological cases.

## OUT-DOOR PATIENTS.

The following returns give the total number of patients treated at the out-door department of the various hospitals and Government Dispensaries and by the Travelling Ambulance:—

			New Cases	Repetitions	Total
Dispensaries	...	...	36,726	14,392	51,118
Travelling Dispensaries	...	...	20,647	311	20,958
	Total	...	57,373	14,703	72,076

The figures shew an increase of 2,176 new cases and 8,340 repetitions over the totals for 1347 A.H.

## VI. PRISONS.

The Central Prison at Alor Star, has a sick ward and a whole time Dresser. The sick ward at the Prison, Kulim, was closed in August, when that prison was abolished.

The sick ward attached to the Prison, Sungei Patani, is retained and visited daily by a dresser from the local hospital. The Medical Officer in each place pays routine visits to the prison. All serious cases are transferred to the hospitals for treatment.

The following return shews the admissions to the sick wards for the past 5 years:—

Year	No. treated	Deaths	Percentage of deaths
1344 A.H. ...	249	6	2.40
1345 ...	239	12	5.02
1346 ...	225	13	5.77
1347 ...	269	4	1.49
1930 A.D. ...	293	...	...

## PREVAILING DISEASES DURING 1930 A.D.

		Total treated.
Malaria	..	57
Dysentery, Amoebic..	..	5
,,    Bacillary	..	17
Bowel Diseases	..	29
Venereal Diseases	..	5
Respiratory Diseases (ex. Pulm. Tuberculosis)	..	34
Pulm. Tuberculosis	..	3
Ankylostomiasis	..	19
Other Diseases	..	124
		—
Total	..	293 No deaths.

The daily average of prisoners and inpatients for the past three years was as follows:—

		1346 A.H.		1347 A.H.		1930 A.D.	
		Prisoners	Patients	Prisoners	Patients	Prisoners	Patients
Alor Star	...	295	7.81	255.00	7.00	219.25	7.63
Sungei Patani	...	47	1.10	59.56	1.13	58.29	1.25
Kulim	...	32	1.07	34.31	1.79	24.40	1.02
Total	...	374	9.98	348.87	7.92	301.94	7.90

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## “A”

## VITAL STATISTICS.

The population of Kedah for the year, 1930, is estimated to be 416,288 against 409,328 for 1348 A.H. The following is a comparative table for the last 13 years:—

Year	Estimated Population	Births	Birth-rate per mille	Deaths	Death-rate per mille	
1329 A.H. ...	245,813	...	...	...	...	Census figure
1336 ...	290,000	7,902	27.25	6,299	21.72	
1337 ...	300,000	9,102	30.34	11,548	38.49	
1338 ...	325,000	9,593	29.51	8,557	26.14	
1339 ...	338,558	10,153	29.99	8,718	25.75	Census figure
1340 ...	340,000	10,305	30.30	8,656	25.40	
1341 ...	341,596	9,454	27.73	7,834	23.41	
1342 ...	350,000	11,095	31.70	7,877	22.41	
1343 ...	375,500	11,152	29.69	8,647	23.02	
1344 ...	384,124	11,342	29.52	9,910	25.75	
1345 ...	398,222	13,738	34.49	10,723	26.92	
1346 ...	399,864	13,066	32.68	11,424	28.57	
1347 ...	405,650	15,347	37.83	9,561	23.57	
1930 A.D. ...	416,288	16,745	40.22	9,785	23.51	

## “B”

## Population according to races with death rate—1930 A.D.

Races			Approximate Population	Deaths	Death-rate per mille
Europeans	...	...	404	...	...
Eurasians	...	...	163	...	...
Malays	...	...	287,652	6,022	20.94
Chinese	...	...	68,084	1,962	28.82
Indians	...	...	50,815	1,611	31.70
Others	...	...	9,170	190	20.72
Total			416,288	9,785	23.51

## “C”

## Infantile Death rate for the last 11 years.

Year.	Death under 1 year.			Rate per mille.
1338 A.H. ..	..	..	..	136.76
1339 „ ..	..	..	..	194.98
1340 „ ..	..	..	..	165.35
1341 „ ..	..	..	..	161.73
1342 „ ..	..	..	..	126.27
1343 „ ..	..	..	..	151.45
1344 „ ..	..	..	..	169.24
1345 „ ..	..	..	..	163.64
1346 „ ..	..	..	..	158.66
1347 „ ..	..	..	..	127.71
1930 A.D. ..	..	..	..	143.02

## “D”

## Distribution of deaths according to Sex and Nationality, 1930 A.D.

Nationality			Male	Female	Total
Europeans	...	...	...	...	...
Eurasians	...	...	...	...	...
Malays	...	...	...	3,144	2,878
Chinese	...	...	...	1,406	556
S. Indians	...	...	...	853	726
N. Indians	...	...	...	26	6
Others	...	...	...	98	92
Total			5,527	4,258	9,785

## “E”

## Births according to Sex and Nationality, 1930 A.D.

Nationality			Male	Female	Total
Europeans	...	...	...	2	2
Eurasians	...	...	2	1	3
Malays	...	...	5,959	5,639	11,598
Chinese	...	...	1,522	1,369	2,891
S. Indians	...	...	1,040	951	1,991
N. Indians	...	...	26	10	36
Others	...	...	107	117	224
Total			8,656	8,089	16,745

## “F”

## Still Births according to Sex and Nationality, 1930 A.D.

Nationality			Male	Female	Total
Europeans	...	...	...	...	...
Eurasians	...	...	...	...	...
Malays	...	...	378	316	694
Chinese	...	...	74	69	143
S. Indians	...	...	91	78	169
N. Indians	...	...	1	1	2
Others	...	...	5	3	8
Total			549	467	1,016

## “G”

The Infantile death rate per thousand births, amongst the principal Nationalities was:—

Malays.  
124.33

Chinese.  
144.24

Indians.  
252.09

## "H"

Incidence of deaths according to Ages and Nationality, 1930 A.D.

Ages			Europeans	Eurasians	Malays	Chinese	S. Indians	N. Indians	Others	Total
Under 1 year	1 to 4 years	5 to 14 years	...	...	1,422	417	504	7	25	2,395
15 to 24	25 to 34	35 to 44	...	...	1,027	169	196	3	23	1,418
45 to 54	55 to 64	65 to 74	75 years and over	...	527	102	99	2	18	748
306	503	451	366	526	148	114	8	10	577	1,070
416	458	271	221	23	248	211	5	19	934	815
271	221	98	19	19	265	284	4	33	746	505
91	42	19	...	...	451	211	1	24	577	577
190	9	22	32	190	6,022	1,962	1,579	190	9,785	

## "I"

Table shewing Principal Causes of Deaths (according to Register of Deaths) for the year 1930.

## Deaths from Preventable Diseases:—

Fever unspecified	..	..	..	..	..	..	2,133
Malaria	..	..	..	..	..	..	313
Tuberculosis	..	..	..	..	..	..	223
Dysentery Amoebic	..	..	..	..	..	..	41
,,    Bacillary	..	..	..	..	..	..	65
Ankylostomiasis	..	..	..	..	..	..	1,276
Syphilis	..	..	..	..	..	..	20
Lobar Pneumonia	..	..	..	..	..	..	107
Septicaemia	..	..	..	..	..	..	17
Influenza	..	..	..	..	..	..	1
Yaws (Puru)	..	..	..	..	..	..	11
Small-pox	..	..	..	..	..	..	5
4,229	Other Infectious Diseases	..	..	..	..	..	17

## General Diseases, Deaths from:—

Digestive system	..	..	..	..	..	..	175
Respiratory System	..	..	..	..	..	..	269
Nervous System	..	..	..	..	..	..	41
Circulatory System	..	..	..	..	..	..	45
Urinary System	..	..	..	..	..	..	34
Affections connected with Pregnancy and Parturition	..	..	..	..	..	..	243
Tumours	..	..	..	..	..	..	30
Premature birth	..	..	..	..	..	..	44
Infantile Convulsions	..	..	..	..	..	..	2,707
5,556	General, accident, Old Age, Ill-defined conditions &c.	..	..	..	..	..	1,968
9,785	Total	..	..	..	..	..	9,785

## "J"

Cases of Infectious Diseases reported to Health Office, for the year 1930 A.D.

Chicken-pox	..	..	..	..	57	0
Small-pox	..	..	..	..	34	5
Measles	..	..	..	..	43	0
Mumps	..	..	..	..	53	0
Typhoid Fever	..	..	..	..	14	1
Para Typhoid	..	..	..	..	7	0
Tropical Typhus	..	..	..	..	4	0
Alastrim	..	..	..	..	2	0
Cerebro-Spinal Fever	..	..	..	..	1	0
					—	—
			Total	..	215	6
					—	—

## "K"

## SCHOOL FIGURES.

1. Total examined by Health Staff .. .. 2,374.

Diseases.	Cases.	Percentage.
Spleen	133	5.60
Anaemia	156	6.57
Eye diseases	11	.46
Ear ,,	2	.0
Scabies	23	.97
Yaws	97	4.09
Caries (Class I)	342	14.46
," ( , II)	251	10.57
," ( , III)	281	11.84

2. School Girls examined by the Lady Medical Officer.

Total examined .. .. .. .. 92

Diseases.	Cases.	Percentage.
Dental caries, bad	23	25.00
," ,," slight	31	33.69
Enlarged glands	16	17.39
Tonsils + ..	24	25.80
," ++ ..	16	17.39
Worms	52	55.43
Spleen enlarged	26	28.26
Heart defect	5	5.43
Lung ,," ..	10	10.87
Anaemia	8	8.69
Conjunctivitis	7	7.60
Yaws	2	2.17
Rashes	5	5.43

## "L"

## Population by nationalities of European Holdings.

No.	Nationalities	Labourers		Dependents		Infants
		Males	Females	Adults	Children	
1	Malays	1,474	1,214	137	546	137
2	Indians	17,145	9,168	1,895	6,589	2,130
3	Chinese	1,553	42	55	33	5
4	Javanese	135	37	19	22	1
5	Others	119	20	19	15	4
	Total	20,426	10,481	2,125	7,205	2,277

## “ M ”

Population by nationalities of Native holdings.

No.	Nationalities	Labourers		Dependents		Infants
		Males	Females	Adults	Children	
1	Malays	2,961	2,225	373	853	126
2	Indians	1,311	434	108	249	47
3	Chinese	2,889	172	149	173	44
4	Javanese	46	30	4	11	1
5	Others	62	6	4	14	...
	Total	7,269	2,867	638	1,300	218

Total visits to Estates by Senior Health Officer, Health Officer, and Staff, 229.

## “ N ”

Deaths by nationalities on European holdings.

No.	Nationalities	Labourers	Dependents		Infants
			Adults	Children	
1	Malays	3	4	8	8
2	Indians	52	31	49	213
3	Chinese	2	1	1	2
	Total	57	36	58	223

## “ O ”

Total labourers and dependents admitted to Government Hospitals from European holdings with deaths.

1. Total admissions	..	..	..	..	3,265
2. „ deaths	..	..	..	..	369

## “ P ”

Deaths by nationalities on Native holdings

No.	Nationalities	Labourers	Dependents		Infants
			Adults	Children	
1	Malays	4	2	3	1
2	Indians	5	2	...	...
3	Chinese	2	...	...	...
	Total	11	4	3	1

## “ Q ”

Total labourers and dependents admitted to Government Hospitals from Native holdings with deaths.

1. Total admissions	..	..	..	..	143
2. „ deaths	..	..	..	..	17

Estate Admissions to Government Hospitals with deaths, by diseases, according to Districts.

No.	Districts	Malaria		Amkylostomiasis		Dysentery		Other Bowel Diseases		Pneumonia		Other Diseases		Total		
		A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	A.	D.	
1	Alor Star	...	...	62	4	60	...	3	1	5	...	12	7	147	5	
2	Sungei Patani	...	...	322	27	128	11	61	17	29	2	96	36	783	72	
3	Kulim	...	...	112	17	39	6	13	4	27	2	30	16	191	24	
4	Kuala Ketil	...	...	235	24	78	1	28	7	...	...	...	...	360	58	
5	Serdang	...	...	135	8	46	2	25	5	19	2	21	8	176	10	
6	Baling	...	...	25	1	...	...	...	...	1	...	...	...	16	...	
7	Langkawi	...	...	7	...	6	...	...	...	6	...	2	1	102	8	
	Total	...	898	81	357	20	130	34	87	6	161	68	1,775	177	3,408	386
	(A). Total admissions	...	3,408	1	(B). Total deaths	...	386									

## APPENDIX—S.

ANNUAL RETURN OF INDOOR PATIENTS, TREATED IN HOSPITALS  
IN KEDAH, 1930 A. D.

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>INFECTIVE DISEASES.</b>						
Cerebrospinal Fever	...	...	1	1	1	...
Chicken-pox	...	...	31	...	31	...
Dengue	...	...	2	...	2	...
Dysentery Amoebic	...	12	232	32	244	8
" Bacillary	...	13	203	46	216	11
Enteric Fever	...	...	12	2	12	3
Erysipelas	...	...	11	1	11	2
Gonorrhœa	...	...	12	181	193	8
Gonorrhœal Rheumatism	...	4	71	1	75	3
Gonorrhœal Conjunctivitis	...	2	12	...	14	1
Gonorrhœal Urethritis	...	...	1	...	1	...
Hydrophobia	...	...	2	1	2	...
Influenza	...	...	11	73	84	...
Leprosy	...	...	4	49	53	6
<b>Malaria :—</b>						
(a) Benign Tertian	...	52	1,827	60	1,879	35
(b) Quartan	...	5	100	6	105	2
(c) Malignant Tertian	...	50	1,848	156	1,898	22
(d) Mixed Infection	...	6	204	16	210	3
(e) Type Undiagnosed	...	18	935	11	953	18
(f) Malarial Cachexia	...	26	385	17	411	12
(g) Blackwater Fever	...	...	5	3	5	...
Measles	...	...	25	3	25	...
Mumps	...	...	1	23	24	...
Phagedoena	...	...	2	1	3	...
Pneumonia	...	...	13	233	246	8
Pyæmia	...	...	...	3	1	3
Pyrexia of uncertain origin	...	4	36	2	40	2
Rheumatism	...	...	...	34	34	...
Septicæmia	...	...	...	8	8	1
Small-pox	...	...	...	3	3	...
Alastrim	...	...	...	1	...	1
<b>Syphilis :—</b>						
(a) Primary	...	7	46	1	53	5
(b) Secondary	...	2	144	1	146	12
(c) Tertiary	...	...	10	1	10	...
(d) Inherited	...	...	23	2	23	...
Tetanus	...	...	1	4	5	...
<b>Tuberculosis :—</b>						
(a) General	...	1	9	3	10	1
(b) Phthisis	...	24	238	99	262	23
Whooping Cough	...	...	11	...	11	...
Yaws	...	1	21	...	22	1
Other Infective Diseases	...	1	9	3	10	...
<b>INTOXICATIONS.</b>						
Alcoholism	...	...	16	...	16	...
Morphinism	...	...	2	...	2	...
Other Intoxications	...	...	8	...	8	1

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>GENERAL DISEASES.</b>						
Anæmia	...	2	26	7	28	...
Beri-beri	...	7	47	3	54	4
Diabetes	...	...	2	...	2	...
Leucocythaemia	...	...	1	...	1	...
Osteo-arthritis	...	...	10	2	10	...
Other General Diseases	...	8	92	49	100	12
 <b>CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.</b>						
Malformations	...	...	1	1	...	...
New Growth, Non-malignant	...	1	9	...	10	...
Do. Malignant	...	2	25	15	27	2
Cyst	...	...	6	1	6	...
Other Morbid Conditions	...	...	5	3	5	1
 <b>DISEASES OF THE NERVOUS SYSTEM.</b>						
Nerves :—						
Neuritis	...	...	36	2	36	12
Multiple neuritis	...	...	3	...	3	...
Other Diseases of the Nerves	...	...	16	...	16	...
Spinal Cord and Membranes :—						
Meningitis	...	...	3	2	3	...
Myelitis	...	2	4	1	6	1
Locomotor ataxia	...	2	5	1	7	4
Other Diseases of the Spinal Cord and Membranes	...	1	3	2	4	...
Brain and Membranes :—						
Meningitis	...	...	2	1	2	...
Hæmorrhage	...	...	5	5	5	...
Abscess	...	...	1	1	1	...
Other Diseases of Brain and Membranes	...	1	4	...	5	2
Nervous Disorders :—						
Paraplegia	...	3	16	3	19	4
Hemiplegia	...	1	25	7	26	4
Convulsions	...	...	11	7	11	...
Epilepsy	...	2	14	1	16	1
Neuralgia	...	...	14	...	14	...
Hysteria	...	...	1	...	1	...
Neurasthenia	...	...	1	...	1	...
Other Nervous Disorders	...	...	17	...	17	1
Mental Diseases :—						
Idiocy	...	...	1	...	1	...
Mania	...	...	11	...	11	5
Melancholia	...	...	3	...	3	...
Delusional insanity	...	1	2	...	3	...
General Paralysis of the insane	...	...	1	...	1	1
Dementia	...	1	3	...	4	1
Other Mental Diseases	...	1	...	...	1	...

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE EYE.</b>						
Conjunctivitis	...	2	78	...	80	...
Trachoma	...	...	3	...	3	1
Keratitis	...	...	5	...	5	...
Ulcer of Cornea	...	2	37	...	39	2
Iritis	...	1	12	...	13	...
Optic atrophy	...	...	1	...	1	...
Cataract	...	4	22	...	26	6
Panophthalmitis	...	1	8	...	9	1
Blepharitis	...	...	1	...	1	...
Other Eye Diseases	...	8	25	...	33	9
<b>DISEASES OF THE EAR.</b>						
Inflammation	...	...	8	...	8	1
Other Ear Diseases	...	...	42	...	42	1
<b>DISEASES OF THE NOSE.</b>						
Inflammation	...	...	1	...	1	...
Other Nose Diseases	...	...	19	...	19	...
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>						
Pericarditis	...	...	1	1	1	...
Endocarditis	...	...	7	4	7	1
Valvular Disease	...	1	7	5	8	...
Myocarditis	...	1	16	9	17	1
Dilatation of heart	...	...	10	3	10	...
Syncope	...	...	4	2	4	...
Disordered action of heart	...	...	6	2	6	...
Aneurysm	...	...	1	...	1	...
Phlebitis	...	1	3	...	4	...
Other Diseases of the System	...	1	25	6	26	...
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>						
Asthma	...	7	134	5	141	5
Bronchitis	...	13	480	19	493	22
Broncho-pneumonia	...	11	144	65	155	5
Gangrene of lung	...	...	9	2	9	...
Pleurisy	...	5	56	5	61	2
Empyema	...	...	5	2	5	...
Other Diseases of the System	...	...	33	2	33	1
<b>DISEASES OF THE DIGESTIVE SYSTEM.</b>						
Stomatitis	...	...	11	2	11	1
Ulceration of mouth	...	...	2	...	2	1
Gangrene of mouth	...	...	2	1	2	...
Pyorrhœa alveolaris	...	...	13	...	13	...
Caries of tooth	...	1	15	...	16	...
Ulceration of tongue	...	...	1	...	1	...
Tonsillitis	...	1	13	...	14	...
Inflammation of pharynx	...	1	5	...	6	...
Gastritis	...	1	26	...	27	2
Ulceration of stomach	...	1	9	...	10	...
Dyspepsia	...	...	15	...	15	1
Enteritis	...	3	88	27	91	1
Appendicitis	...	2	21	4	23	1
Colitis	...	...	8	1	8	...
Ulceration of intestines	...	...	2	1	2	...
Sprue	...	1	...	...	1	...
Hernia	...	3	51	2	54	2
Intestinal obstruction	...	...	4	4	4	...

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
<b>DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)</b>						
Diarrhoea	...	...	2	91	11	93
Constipation	...	...	...	29	1	29
Colic	...	...	1	52	...	53
Ischio-rectal abscess	...	...	7	...	7	...
Ulcer of anus	...	...	1	...	1	...
Fissure of anus	...	...	7	...	7	2
Fistula in ano	...	...	6	...	6	...
Hemorrhoids	...	...	1	22	2	23
Hepatitis	...	...	1	47	1	48
Abscess of liver	...	...	...	18	4	18
Cirrhosis of liver	...	...	2	28	10	30
Congestion of liver	...	...	...	1	...	1
Jaundice	...	...	...	20	6	20
Peritonitis	...	...	...	8	6	8
Ascites of unknown origin	...	...	...	7	4	7
Other Diseases of the System	...	3	31	6	34	...
<b>DISEASES OF THE LYMPHATIC SYSTEM.</b>						
Spleen, Rupture	...	...	...	5	2	5
Bubo	...	...	6	56	...	62
Suppuration of Glands	...	...	1	1	...	2
Lymphangitis	...	...	...	6	...	6
Other Diseases of the System	...	...	1	21	1	22
<b>DISEASES OF THE THYROID BODY</b>						
...	...	...	...	2	1	2
<b>DISEASES OF THE URINARY SYSTEM.</b>						
Acute Nephritis	...	...	6	47	22	53
Bright's Disease	...	...	2	14	2	16
Cystitis	...	...	...	6	...	6
Calculus	...	...	...	11	1	11
Retention of Urine	...	...	...	14	...	14
Incontinence of Urine	...	...	...	3	2	3
Other Diseases of the System	...	...	...	15	2	15
<b>DISEASES OF THE GENERATIVE SYSTEM.</b>						
<i>Male :</i>						
Stricture	...	...	...	12	...	12
Urethral fistula	...	...	...	2	...	2
Phimosis	...	...	1	23	...	24
Ulcer Penis	...	...	...	26	...	26
Soft chancre	...	...	1	49	...	50
Scrotum, Abscess	...	...	...	1	...	1
Do. Sloughing	...	...	...	1	...	1
Hydrocele	...	...	...	21	...	21
Orchitis	...	...	2	20	1	22
Epididymitis	...	...	1	8	...	9
Other Diseases, Male Organs	...	2	59	1	61	2
<i>Female :</i>						
Metritis	...	...	...	5	...	5
Erosion of cervix	...	...	1	2	...	3
Displacement and distortions	...	...	...	3	...	3
Vulva, Inflammation	...	...	...	6	...	6
Do. Ulcer	...	...	3	...	3	3
Other Diseases, Female Organs	...	...	24	1	24	...

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.						
Natural labour	...	8	147	1	155	4
Difficult labour	...	...	21	3	21	2
Abortion	...	...	32	...	32	...
Rupture perineum	...	...	4	...	4	...
Retention of placenta	...	...	7	3	7	...
Still-birth	...	...	1	...	1	...
Premature birth	...	...	37	32	37	...
Post-partum haemorrhage	...	...	1	...	1	...
Puerperal sapraemia	...	1	27	4	28	...
Other affections	...	4	141	19	145	6
DISEASES OF THE FEMALE BREAST						
Breast	...	...	4	...	4	...
DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.						
Periostitis	...	...	22	...	22	1
Caries of bones	...	...	1	...	1	...
Necrosis of bones	...	2	6	...	8	1
Arthritis	...	1	58	1	59	4
Synovitis	...	7	47	2	54	...
Ankylosis	...	...	1	...	1	...
Caries of Spine	...	1	...	...	1	1
Myalgia	...	...	23	...	23	...
Other Diseases of the Organs of Locomotion	...	2	25	...	27	1
DISEASES OF THE CONNECTIVE TISSUE.						
Cellulitis	...	5	124	6	129	7
Abcess	...	9	227	4	236	6
Gangrene	...	1	19	4	20	7
Other Diseases of the Connective Tissue	...	1	10	...	11	3
DISEASES OF THE SKIN.						
Urticaria	...	...	2	...	2	1
Eczema	...	...	54	...	54	1
Boil	...	1	5	...	6	...
Carbuncle	...	2	10	...	12	2
Herpes	...	...	10	...	10	...
Herpes Zoster	...	...	3	...	3	...
Psoriasis	...	...	10	...	10	...
Ulcer	...	101	1,451	8	1,552	73
Other Skin Diseases	...	6	36	...	42	2
INJURIES.						
General	...	...	40	...	40	...
Wounds, Local	...	37	1,116	10	1,153	34
Sprains	...	...	22	...	22	2
Fractures, simple	...	8	101	8	109	9
Do. compound	...	11	34	8	45	5
Dislocations	...	2	7	...	9	1
Dog bite	...	1	90	...	91	4
Snake bite	...	1	7	3	8	...
Insect bite	...	...	6	...	6	...
Rabies	...	...	1	1	1	...
Other local injuries	...	6	399	6	405	5

Diseases	Remained	Admitted	Died	Total	Remaining	Remarks
POISONS.						
Alcohol	...	...	3	...	3	...
Opium	...	...	12	...	12	...
Other Poisons	...	...	18	1	18	...
PARASITES.						
Tænia saginata	...	...	3	...	3	...
Ascaris Lumbricoides	...	13	397	11	410	13
Ankylostomiasis	...	63	1,144	51	1,207	21
Helminthiasis	...	...	15	...	15	...
Filaria	...	1	8	...	9	...
Other Nematoda	...	1	9	...	10	...
Tinea Circinata	...	...	2	...	2	...
Do. Imbricata	...	1	5	...	6	...
Other Vegetable Parasites	...	...	2	...	2	...
Scabies	...	5	71	...	76	...
Other Animal Parasites	...	10	8	...	18	1
UNDER OBSERVATION	...	39	884	2	923	8
NO DISCOVERABLE DISEASE	...	5	212	...	217	12
TOTAL	...	769	17,031	1,155	17,800	584

## APPENDIX—T.

ANNUAL RETURN OF RAINFALL—1930 A.D.

APPENDIX—U.  
METEOROLOGICAL RETURN OF HOSPITAL, ALOR STAR, FOR 1930 A.

MONTHS, 1930 A.D.

Highest Shade Temperature = 101.0° on 22.2.30.

24 hours  
during rainfall greatest

## APPENDIX—V.

## METEOROLOGICAL RETURN OF HOSPITAL, SUNGEI PATANI, FOR 1930 A. D.

MONTHS, 1930 A.D.	TEMPERATURE			HYGROMETER			RAINFALL			SHADING		
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Humidity	Dew point	Total Rainfall	24 hours	Greatest Rainfall during	Lowest shade Temperature=68° on 29.6.30.
January	... 82.6	93.7	71.8	21.9	74.2	.697	68.5	62.6	2.00	.69		
February	... 83.4	95.9	72.9	22.9	74.8	.713	69.2	62.4	1.75	.78		
March	... 83.2	94.6	73.3	21.6	76.6	.790	72.2	69.6	9.06	2.06		
April	... 83.9	94.4	74.4	19.7	77.8	.837	73.9	72.1	5.10	1.85		
May	... 84.9	93.8	73.4	20.6	78.5	.851	74.4	70.9	4.29	1.32		
June	... 83.0	92.5	72.4	20.2	77.3	.826	73.5	73.2	7.40	1.64		
July	... 82.5	91.9	73.5	18.3	76.9	.815	73.1	73.4	4.84	1.87		
August	... 81.0	90.7	72.3	18.6	76.4	.820	73.3	77.5	11.62	2.80		
September	... 82.3	90.5	74.5	18.0	76.4	.796	72.4	72.2	12.36	3.04		
October	... 81.3	88.8	73.1	16.0	76.2	.804	72.7	75.3	18.64	2.18		
November	... 80.6	89.0	73.3	15.7	76.0	.810	72.9	77.7	5.45	1.08		
December	... 82.1	88.1	72.9	15.2	75.8	.764	71.2	68.2	10.03	1.62		

Lowest Shade Temperature=64° on 3. 1. 30.

Highest Shade Temperature=103° on 24. 1. 30.

## APPENDIX—W.

## METEOROLOGICAL RETURN OF HOSPITAL, KULIM, FOR 1930 A.D.

MONTHS, 1930 A.D.	TEMPERATURE			HYGROMETER			Total Rainfall during 24 hours	Greatest Rainfall during 24 hours
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Humidity	Dew point
January	...	96.1	71.7	24.3	76.7	.826	73.5	75.9
February	...	97.5	72.3	25.3	76.5	.788	72.1	69.7
March	...	95.0	73.5	21.5	78.2	.865	74.9	76.2
April	...	93.7	74.7	19.0	79.1	.874	75.2	72.4
May	...	93.5	74.3	19.3	79.5	.891	75.8	73.8
June	...	92.1	73.7	18.4	78.1	.851	74.4	73.5
July	...	93.4	73.6	19.8	78.1	.860	74.7	75.5
August	...	92.8	72.8	20.0	77.4	.851	74.4	78.2
September	...	92.7	72.4	20.2	77.5	.840	74.0	74.9
October	...	91.3	72.6	18.6	77.2	.840	74.0	77.2
November	...	92.9	73.0	19.9	76.6	.823	73.4	77.1
December	...	91.7	72.3	19.4	77.2	.846	74.2	78.5

## APPENDIX—X.

## METEOROLOGICAL RETURN OF HOSPITAL, LANGKAWI, FOR 1930 A.D.

MONTHS, 1930 A.D.	TEMPERATURE			HYGROMETER			24 hours Greatest Rainfall during					
	Mean dry bulb	Maximum	Minimum	Range	Mean wet bulb	Vapour tension	Humidity					
January	...	...	84.8	93.7	72.8	21.1	.75.4	.713	69.2	59.6	.29	.20
February	...	...	85.8	95.7	74.2	21.4	.75.8	.716	69.3	58.0	.04	.03
March	...	...	86.2	95.4	75.8	19.6	.77.2	.769	71.4	61.5	4.69	1.93
April	...	...	86.4	95.5	75.1	19.4	.79.4	.865	74.9	68.8	4.40	1.24
May	...	...	84.1	91.8	75.1	16.7	.79.0	.885	75.6	75.7	7.99	1.80
June	...	...	85.0	94.0	73.6	20.4	.79.3	.885	75.6	73.6	10.01	1.83
July	...	...	83.2	91.1	74.2	16.9	.78.8	.894	75.9	78.8	6.18	3.03
August	...	...	82.8	90.4	73.4	17.0	.78.1	.868	75.0	77.4	10.65	2.75
September	...	...	84.2	91.3	73.6	17.7	.78.5	.863	74.8	73.6	14.12	4.90
October	...	...	82.8	90.4	74.0	16.4	.78.5	.888	75.7	79.2	14.09	2.35
November	...	...	82.2	89.0	74.0	15.0	.78.3	.888	75.7	80.8	9.52	2.75
December	...	...	83.6	91.1	73.8	17.3	.77.9	.843	74.1	73.3	6.68	1.81

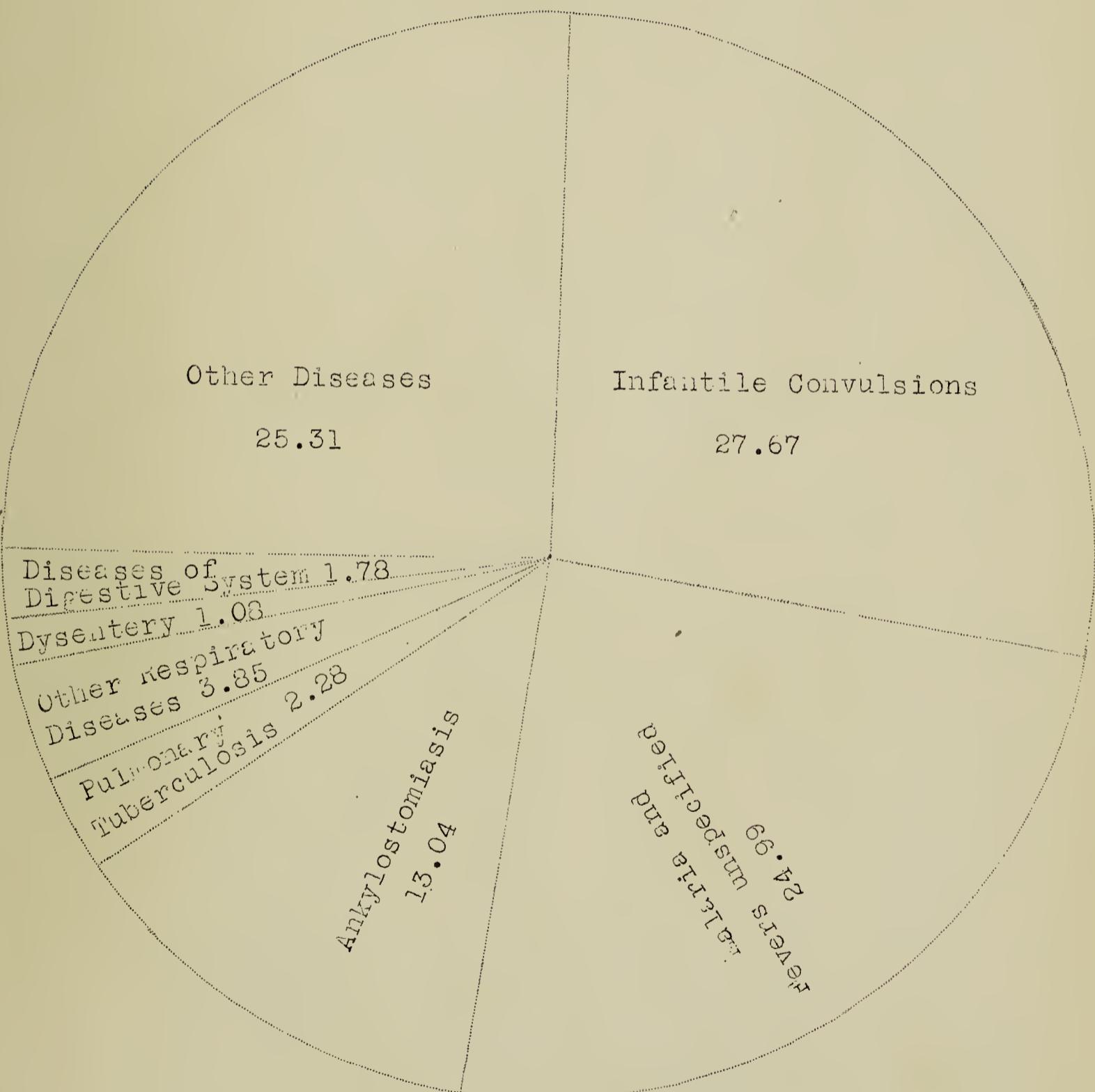
Highest Shade Temperature = 100° on Feb. 22nd, 24th, 28th, and on March 1st and 6th.  
Lowest Shade Temperature = 70° on 2-1-30, 21-1-30, 16-2-30, and 28-5-30.

PERCENTAGE OF DEATHS FROM CERTAIN DISEASES TO  
TOTAL DEATHS IN THE STATE.

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TOTAL DEATHS IN THE STATE = 9,785.

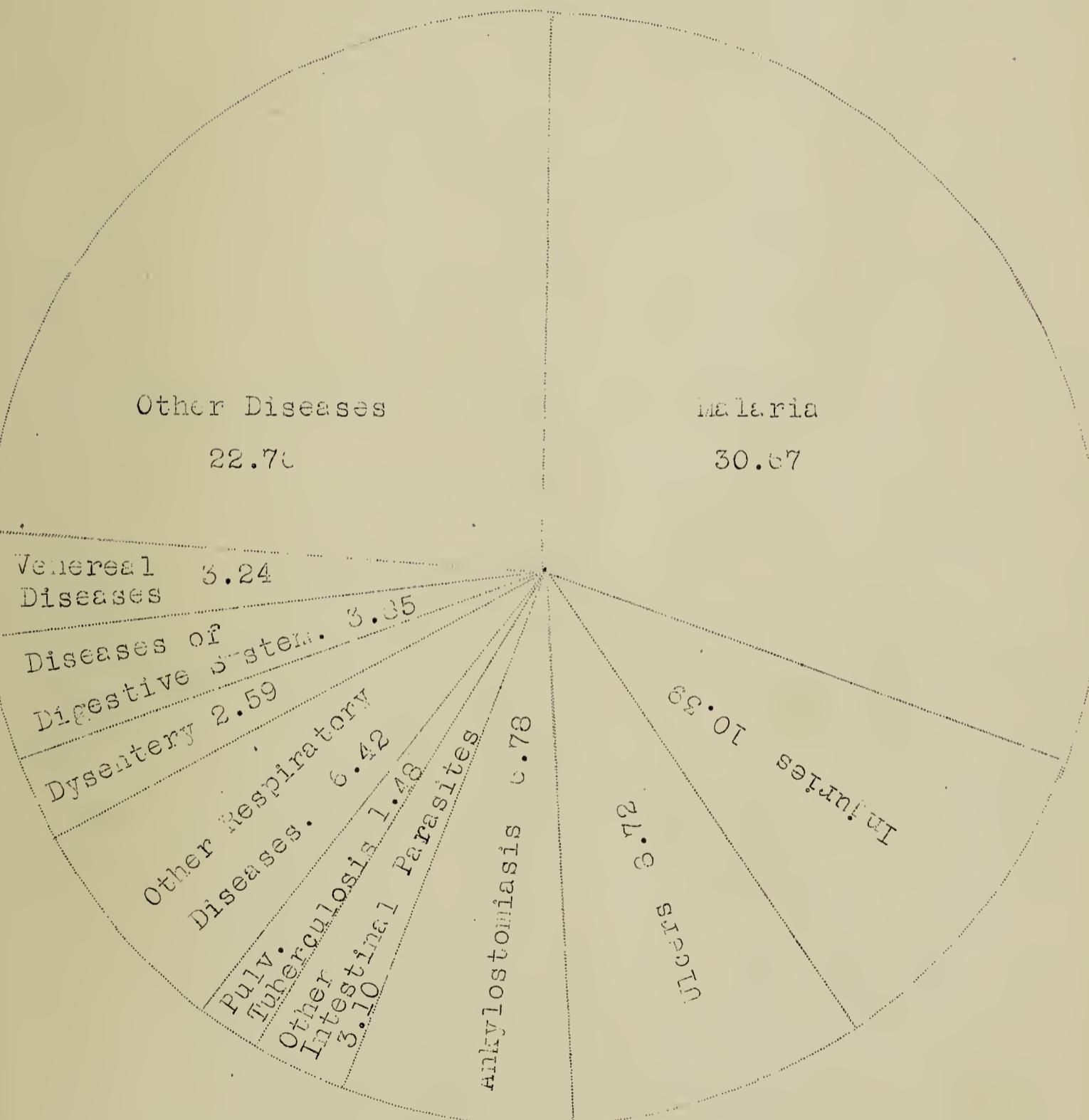
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PERCENTAGE OF CASES OF CERTAIN DISEASES TO  
TOTAL TREATED IN GOVERNMENT HOSPITALS

TOTAL TREATED - 17,800 CASES.





PERCENTAGE OF DEATHS OF CERTAIN DISEASES TO

TOTAL DEATHS IN GOVERNMENT HOSPITALS.

TOTAL DEATHS IN GOVERNMENT HOSPITALS - 1,155.

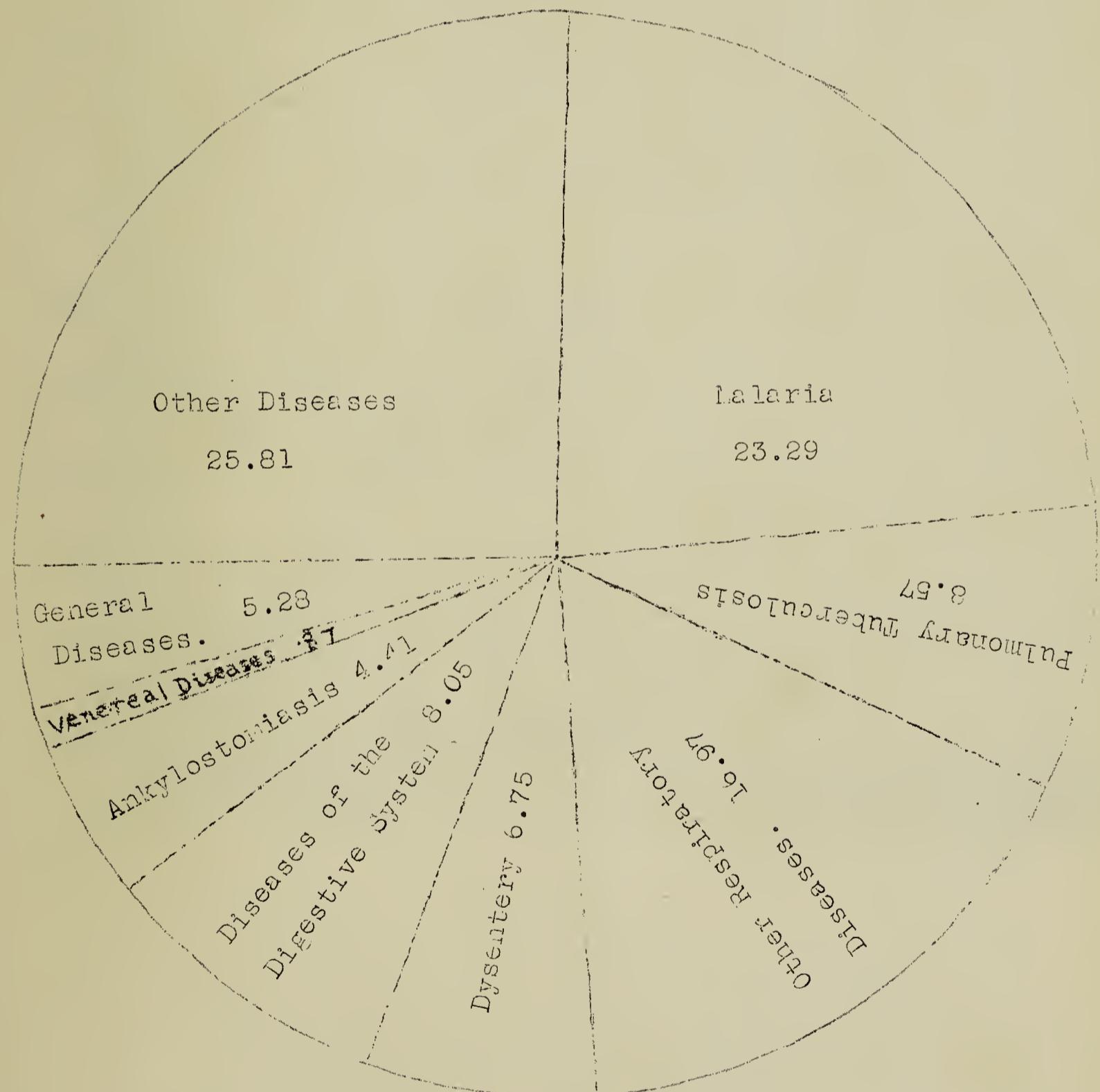
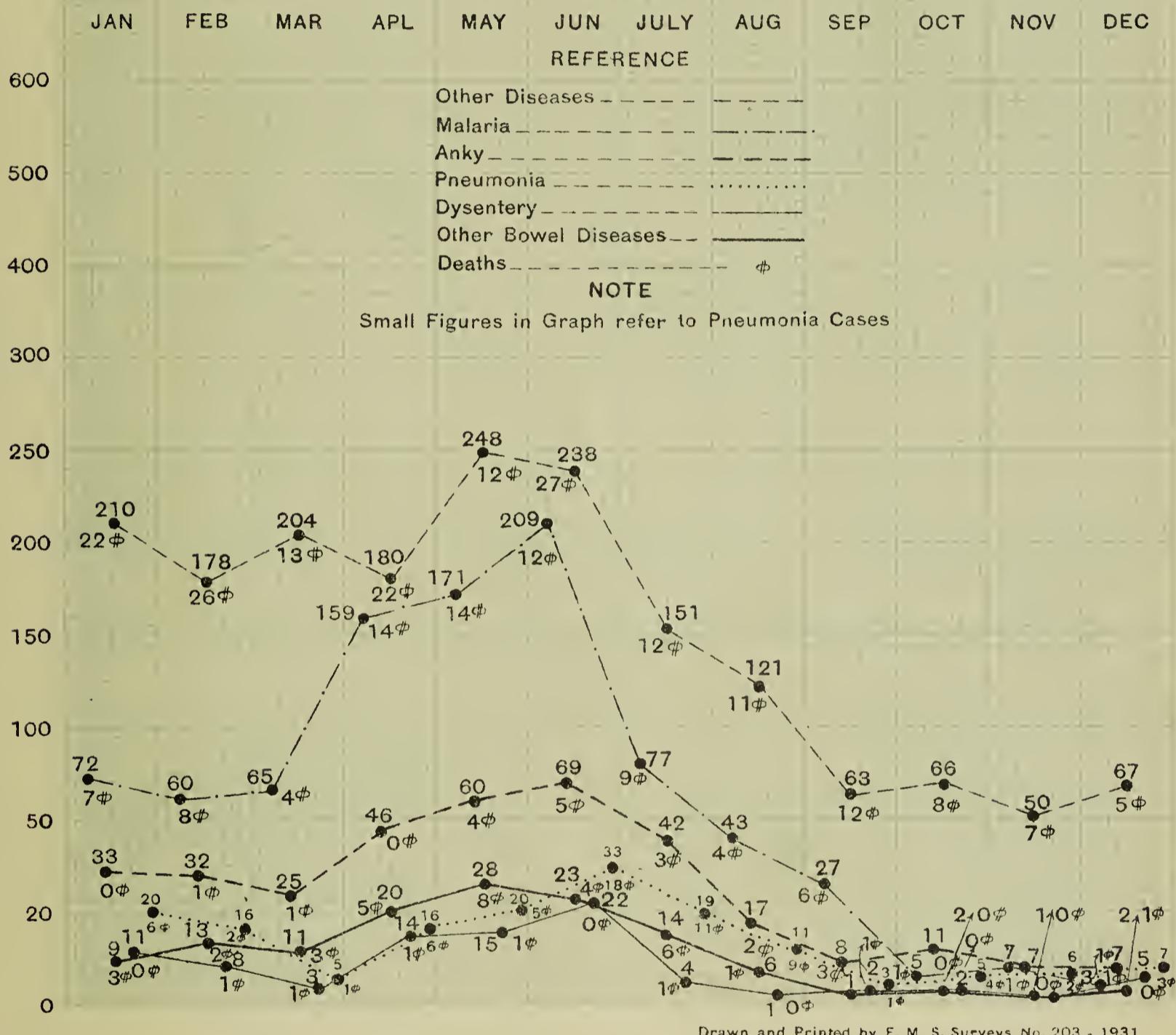


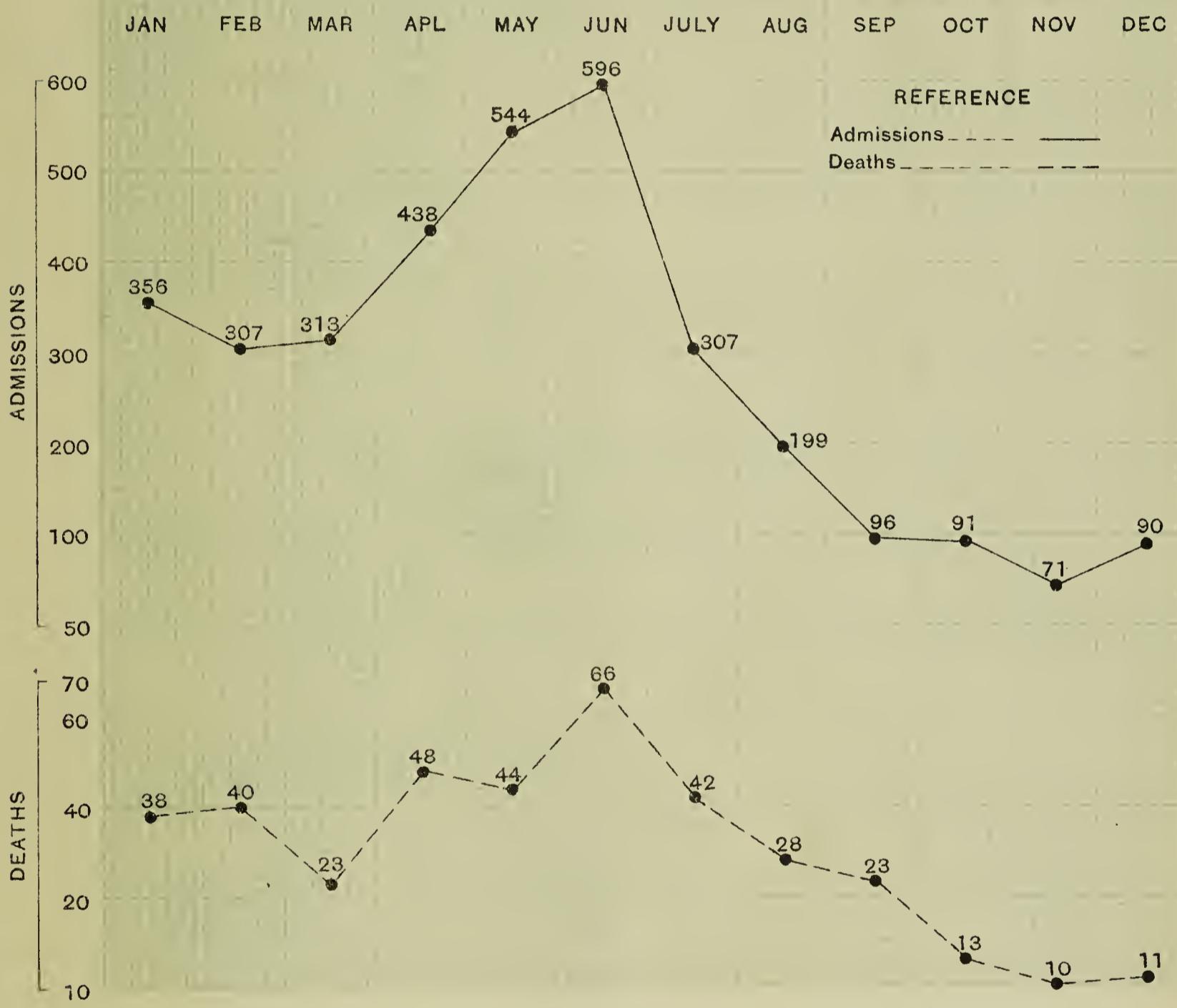


CHART SHOWING PREVAILING DISEASES AMONG ESTATE POPULATION.  
 ADMISSIONS TO HOSPITAL WITH DEATHS FOR THE PERIOD  
 JANUARY 1930 TO DECEMBER 1930.





GRAPH SHOWING TOTAL ESTATE LABOURERS AND DEPENDENTS  
 ADMITTED INTO GOVERNMENT HOSPITALS WITH DEATHS BY MONTHS  
 FROM JANUARY 1930 TO DECEMBER 1930.



Drawn and Printed by F. M. S. Surveys No. 203 - 1931





# KEDAH

Scale, 12 Miles to 1 Inch

## REFERENCE

### **Metalled Road.**

### Route of Travelling Dispensary Ambulance.

### Hospital or Dispensary.

### Places visited by Travelling Dispensary-----



# MEDICAL AND SANITARY REPORT, PERLIS.

For the year ending 31st December, 1930 A.D.

(30th Rejab, 1348 to 10th Sha'aban, 1349 A.H.)

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## I. ADMINISTRATION.

### STAFF.

The appointments in the Medical Department are as follows:—

The State Surgeon, Kedah, who visits once a month, and oftener if required.

- 1 Assistant Surgeon.
- 1 Hospital Assistant, Grade I.
- 1 Dresser, Grade III.
- 1 Vaccinator.
- 1 Dispensary Assistant.
- 1 Midwife.
- 1 Mosquito larvae collector and identifier (New appointment).

Mohamed Darus bin Abu Seman was sent to Sungai Patani on 12-6-30 (15-1-49) to undergo training for a period of 4½ months as a mosquito larvae collector and identifier. He took up his work at Kangar on 28-10-30 (5-6-49).

Teh binti Mohamed, Midwife, resigned her job on account of ill health on 27-6-30, (30-1-49) and Soom binti Mat Isa was appointed in her place on 8-7-30 (11-2-49).

The hospital was in charge of Assistant Surgeon R. Sivasambandan throughout the year.

### ORDINANCES.

The Deleterious Drugs Enactment was passed during the year.

### FINANCIAL.

The total revenue collected during 1348 A.H. (9-6-29—28-5-30) was \$2,475.74. The total expenditure was \$24,731.26.

## II. PUBLIC HEALTH.

An outbreak of Chicken-pox occurred at Kangar about the third week of November and subsided only at the end of the year. 19 cases (most of them boys in Kangar School) were recorded in all. They were isolated in their respective houses. One case of measles from Kaki Bukit was admitted into hospital.

Two cases of enteric fever (with no deaths) were admitted into hospital during the year. Both of them were Chinese coolies, one from the Tasoh Estate and the other from Kaki Bukit. One case of Enteric Fever remaining from last year died at the beginning of the year.

As usual fevers head the list of communicable diseases and are responsible for nearly half the number of deaths in the State; most of them were malarial.

The number of cases admitted into hospital for malaria shows a decrease from 439 in 1347 A.H. to 374 in 1930 A.D. The mortality from Malaria among hospital patients was somewhat higher than in 1347 A.H. The largest number of admissions into hospital from Malaria was in December.

The impression that Kangar Town was comparatively free from Malaria was not borne out by facts, as a fair number of cases of Malaria occurred in Kangar during the year, in which the infection was undoubtedly contracted locally.

The neighbourhood of Kaki Bukit and Besari School is very malarious. The breeding grounds are numerous and as it would require an enormous amount of money, to remedy the trouble by means of filling or drains, which is not available, it has been advised to find a more healthy site for a village and by means of reduced rates at the new site and increased rates at present site force the people to abandon the present village. In the meantime quinine is being freely distributed and the people encouraged to take treatment.

A larval survey made in the Sanitary Board areas of Kangar and Arau and around Beserie School during the year revealed the following:—

Kangar	Arau	Beserie School
1. Vagus	Vagus	Vagus
2. Kochi	Kochi	Kochi
3. Barbirostris	Barbirostris	Barbirostris
4. Hyrcanus	Hyrcanus	Hyrcanus
5. Hyrcanus var Pad	Fuliginosus	Fuliginosus
6. Rossi	...	Aconitus
7. Fuliginosus	...	Aitkenii type II
8. Aitkenii type I	...	Aitkenii type IV
9. ...	...	Maculatus
10. ...	...	Karwari
11. ...	...	Umbrosus

Respiratory diseases come next in order to fever; the number of cases admitted into hospital for pulmonary tuberculosis showed an increase as compared with the previous years.

Infantile convulsions were also a frequent cause of death. The actual cause might be either Malaria or Ascaris. Practically none of these cases sought medical aid at the hospital. Infantile mortality was greater in Padang Malau and Paya; excluding hospital cases, it was greatest in Padang Malau.

The incidence of Ankylostomiasis among Estate coolies is rather high. Health measures are now being enforced on Estates, which have only recently been brought under the Labour Code. There was a slight increase in the number of admissions for Ankylostomiasis this year as compared with 1347 A.H.

The number of deaths recorded among Malays in Mukim Arau is greater in females than in males. The number of deaths among females during the age period 6 to 25 and 36 to 50 is greater than that among the males for the same period. Excluding deaths from diseases peculiar to women, fevers take a greater toll of life among women; possibly they do not get the same opportunity of treatment as the men; and they are certainly more reluctant to take European medicine. There also appears to be a greater preponderance of old women in that mukim during the year under review (For further details vide appendix).

The disposal of the night soil in the four Pekans, Kangar, Arau, Kaki Bukit and Padang Besar is carried out by the Sanitary Boards. All use the bucket system of removal, the night soil being trenched in plots some distance from the town. This method of disposal is not satisfactory during the rainy season, for low lying places like the above.

The health of the prisoners in Kangar Gaol was satisfactory. Of the 49 prisoners who remained in the Gaol at the beginning of the year and 109 who were admitted during the year, 34 cases were admitted into the hospital. (For further details vide appendix).

At present there is no Enactment for compulsory registration of births and deaths in the State. The statistics of births and deaths will be more reliable when registration is made compulsory.

### RABIES.

The first case of dog bite was reported on 15-1-30 (14-8-48) and the last on 27-12-30 (6-8-49). Seven dogs were concerned in all and 7 persons and 3 goats were bitten. Three were unknown stray dogs; two were kept under observation for 10 days, and were found to be healthy. Two were killed on the spot, but only the brain of one was available for examination. The brain was sent to Institute for Medical Research, Kuala Lumpur, through the State Veterinary Surgeon, Kedah, and was reported to be positive for rabies. One person and 3 goats were bitten by healthy dogs. Of the remaining 6, only four were sent to Alor Star Hospital for treatment, as two persons bitten by unknown stray dogs refused to go to Alor Star Hospital. Arrangements are now made for treatment at the Hospital, Kangar.

The health of the Government Servants was satisfactory. All were examined for signs of Pulmonary Tuberculosis; one was found to be suffering from active disease, and was invalidated.

### OFFICIALS.

The following table gives the Health Statistics of Government Officials (including subordinates) in Perlis.

	Europeans.	Asiatics.
Total number of officials resident ..	.. 2	331
Average number resident ..	.. 2	331
Total number on sick list ..	.. 2	62
Total number of days on sick list ..	.. 12 days	680
Average daily number on sick list ..	.. 0.03	1.86
Percentage of sick to average number resident	100	18.73
Average number of days on sick leave for each patient .. .. ..	6 days	10.97
Average sick time to each resident ..	.. 6	2.05
Total number invalidated .. .. ..	..	3
Percentage of invalidings to total resident .. ..	..	.90
Total deaths .. .. ..	..	3
Percentage of deaths to total resident .. ..	..	.91
Percentage of deaths to average number resident .. .. ..	..	.91
Number of cases of sickness contracted away from residence .. .. ..	..	..

### SCHOOLS.

Regular fortnightly visits were made to 14 schools by the travelling dispensary. Of the Malay Vernacular Schools in Perlis (4 Girls' Schools and 19 Boys' Schools) 7 boys' schools were visited by the Assistant Surgeon with the following results.

	Percentage.
Total pupils on register .. .. ..	708 ..
Total seen .. .. ..	585 ..
Enlarged spleen .. .. ..	182 31.1
Pupils showing no vaccination marks .. .. ..	28 4.8
Yaws (Puru) .. .. ..	16 2.7
Scabies .. .. ..	8 1.4
Diseases of eye .. .. ..	3 .5
Ulcers and other skin diseases .. .. ..	24 4.1

## VACCINATIONS.

2,360 vaccinations were done (296½ tubes of lymph were used).

Malays	..	..	..	..	..	..	1,717
Chinese	..	..	..	..	..	..	452
Siamese	..	..	..	..	..	..	84
Indians	..	..	..	..	..	..	105
Others	..	..	..	..	..	..	2
							—
						Total	.. 2,360
							—

\$796.33 were spent on vaccinations; roughly 33.74 cents per case.

## ESTATES.

There are only two Estates which employ over ten coolies. These have been visited by the Health Officer twice during the year.

The population was as follows—

Nationality	LABOURERS		Dependents	Total
	Males	Females		
Malays	...	84	11	12
Indians	...	179	117	182
Chinese	...	55	12	15
Total	...	318	140	209
				667

Deaths on Estates, 4 including 1 adult female, 1 child and 2 infants.

Admissions to Hospital numbered 89 with 5 deaths.

## VITAL STATISTICS.

(A) The population of Perlis for 1930 A.D. is estimated at 47,633.

The following is a comparative table for the last five years.

Year	Estimated Population	Births	Birth rate per mille	Deaths	Death rate per mille
1344 A. H. ...	44,600	809	18.13	767	17.19
1345 ...	45,500	948	20.83	829	18.22
1346 ...	46,400	940	24.26	722	15.56
1347 ...	46,916	1,315	28.03	767	16.35
1930 A. D. ...	47,633	1,251	26.26	764	16.04

The excess of births over deaths was 487 in 1930.

## (B) Population according to races with deaths and death rate.

Races			Approximate Population	Deaths	Death rate per mille
Eurasians	...	...	6	...	...
Europeans	...	...	4	...	...
Chinese	...	...	4,108	145	35.30
Malays	...	...	40,873	580	14.19
Indians	...	...	928	13	14.01
Siamese	...	...	1,714	26	15.17

There were 145 deaths among infants up to one year old, the rate being 119.93.

## (C) Infant death rate for the last five years was:—

Year	Deaths	Rate per mille	Corrected rate
1344 A. H. ...	105	129.79	133.59
1345 „ „ „	129	136.08	140.22
1346 „ „ „	94	100.00	103.75
1347 „ „ „	146	111.03	113.80
1930 A. D. ...	145	115.91	119.93

The infantile death rate per thousand births among the principal nationalities was:—

	Malays	Chinese	Indians	Siamese
Corrected ...	110.66	153.33	381.00	93.02

Ankylostomiasis in the mother and poor physique are probably the main predisposing causes of the high infantile mortality in the Indians.

## (D) Births according to Nationality.

European	..	..	..	..	..	..	..
Eurasian	..	..	..	..	..	..	1
Chinese	..	..	..	..	..	..	150
Malays	..	..	..	..	..	..	994
Indians	..	..	..	..	..	..	21
Siamese	..	..	..	..	..	..	43
					Total	..	1,209
Males	..	..	..	..	..	..	614
Females	..	..	..	..	..	..	595
					Total	..	1,209

## (E) Still births according to sex and nationality.

Nationality			Males	Females	Total
European	...	...	...	...	...
Eurasian	...	...	...	...	...
Chinese	...	...	...	3	8
Malays	...	...	...	15	10
Indians	...	...	...	2	4
Siamese	...	...	...	...	...
	Total	...	20	22	42

## (F) Distribution of deaths according to Nationality and Diseases

Diseases	European	Eurasian	Malays	Chinese	Indians	Siamese	Total
Fevers	...	...	257	56	3	10	326
Respiratory Diseases	...	...	91	38	4	6	139
Diarrhoea, Dysentery, etc.	...	...	18	8	3	1	30
Oedema (Basal)	...	...	23	4	...	2	29
Infantile convulsions	...	...	102	18	1	3	124
Deaths after abortion or child birth	...	...	12	2	1	1	16
Injuries and accidents	...	...	2	9	...	...	11
Other causes	...	...	10	8	1	2	21
Old age	...	...	65	2	...	1	68
	Total	...	580	145	13	26	764

Injuries and accidents included two cases of fall from a tree, two cases due to collapse of the roof of mines in Kaki Bukit, one case of drowning, one case of gunshot wound, one case of homicidal stab wound, one case of suicidal stab wounds and 3 of suicidal hanging.

## (G) Deaths according to Sex and Nationality.

Nationality			Males	Females	Total
Malays	...	...	303	277	580
Chinese	...	...	105	40	145
Indians	...	...	8	5	13
Siamese	...	...	12	14	26
	Total	...	428	336	764

## (H) Incidence of deaths according to age and Nationality.

Ages		Malays	Chinese	Indians	Siamese	Total
1 year and under	...	110	23	8	4	145
5 years and under	...	75	12	1	2	90
15 do	...	38	9	...	2	49
25 do	...	37	12	1	...	50
35 do	...	58	15	2	1	76
45 do	...	50	37	1	6	94
50 do	...	42	11	...	1	54
55 do	...	9	9	...	3	21
65 do	...	51	9	...	4	64
75 do	...	55	8	...	2	65
100 do	...	48	...	...	1	49
Above 100 years	...	7	...	...	...	7
	Total	580	145	13	26	764

The maximum age at death recorded was 150 in a Malay woman at Kuala Perlis. 206 deaths occurred of persons over 50 years of age.

## III. PORT HEALTH WORK ETC.

All vessels arriving from Siamese ports were inspected during the period when there was an outbreak of Cholera in Siam, from 11-5-30 to 14-9-30.

## IV. HOSPITALS AND DISPENSARIES.

## GENERAL HOSPITAL, KANGAR.

The number of Indoor cases treated during the year was 1,119. There were 67 deaths, being a percentage of 6 to total treated. Excluding 27 deaths which occurred within 48 hours of admission, the death rate was 3.66.

The daily average number of Inpatients was 48.54. The largest number of Inpatients on one day was 70 on 2-7-30 and 5-7-30.

## Indoor patients according to Nationalities.

Nationality	No. treated	Deaths	Percentage of deaths	Deaths within 24 hours
Chinese	633	51	8.06	13
Indians	283	10	3.53	2
Malays	190	5	2.63	...
Javanese	2	...	...	...
Siamese	11	1	9.09	...
Total	1,119	67	6	15

The total number of Malays treated in the Hospital was 190 or slightly more than 1/6 of the total number of admissions.

## ADMISSIONS FROM ESTATES AND MINES.

The total number of patients from Estates and Mines was 205 with 18 deaths or a percentage of 8.08.

The deaths included 8 cases of Malaria, 6 cases of Pneumonia, one case of Prematurity, one of Nephritis, one of Ascariasis, and one of Infantile diarrhoea.

## PREVAILING DISEASES.

There was an increase in the number of cases admitted for Bacillary Dysentery, Venereal Diseases, Pulmonary Tuberculosis, Other lung complaints, Ulcers, Injuries, and Ankylostomiasis; a slight fall in the number of cases admitted for Malaria, Amoebic Dysentery, and other diseases.

The increase under Venereal Diseases is only apparent, since up to 1348, only cases of Syphilis were included under this head. The mortality from Malaria was rather high, though less as compared with the figures during the first seven months of 1348 A.H. The maximum number of cases of Malaria was admitted into hospital in the months of August, and December.

#### INFECTIOUS DISEASES WITH DEATHS.

Diseases	Total treated	Deaths	Percentage of deaths
Dysentery	10	2	20.00
Enteric Fever	4	1	25.00
Erysipelas	2	1	50.00
Influenza	3	...	...
Measles	1	...	...
Pneumonia	31	14	45.16
Pulmonary Tuberculosis	42	7	16.67
Pyæmia	1	1	100.00
Total	94	26	27.66

The death rate from Pneumonia is still high.

#### SURGICAL OPERATIONS.

1 Major and 562 minor operations were performed.

#### LABORATORY WORK.

Blood films were examined in 2,409 instances with the following results:—

Malaria B.T.	..	..	..	..	..	300
„ M.T.	..	..	..	..	..	246
„ Quartan	..	..	..	..	..	6
„ Mixed	..	..	..	..	..	66
Negative	..	..	..	..	..	1,791
					Total	.. 2,409

Other specimens examined totalled 3,175 (for more details vide Appendix).

Post Mortem Examinations:—

Medicolegal	..	..	..	..	..	6
Pathological	..	..	..	..	..	31
					Total	.. 37

#### OUT-DOOR DEPARTMENT.

Number of new cases	..	..	..	..	..	6,434
Repetitions	..	..	..	..	..	3,066

The Nationalities who received treatment were:—

Chinese	..	..	..	..	..	1,164
Indians	..	..	..	..	..	1,147
Malays	..	..	..	..	..	3,988
Siamese	..	..	..	..	..	37
Europeans	..	..	..	..	..	21
Eurasians	..	..	..	..	..	75
Japanese	..	..	..	..	..	2
					Total	.. 6,434

In addition to those treated at the hospital dispensary, 99 cases were treated in the Kangar Gaol.

The Hospital Midwife attended ten cases in their homes.

Neosalvarsan injections numbered 2,197, of which 1,873 were for Yaws, and 324 for other conditions. 24 of these injections were given to Indoor patients for Yaws, and the rest to Out-door cases. Yaws is no doubt less prevalent than it was a few years ago. But unless the persons suffering from yaws are made to undergo a complete course, the disease cannot be eradicated from the State.

The Travelling Dispensary was very useful and attended to 1,006 cases excluding cooly lines, schools and police stations. It is much appreciated by the working classes.

One mental case (male Malay) was transferred to the Central Mental Hospital, Tanjong Rambutan in 1930. One Chinese mental patient died there during the year under review; there were 17 Perlis patients (12 males and 5 females) in that institution at the end of the year.

One Perlis Leper (Indian male) died in the Leper Asylum at Pulau Jerejak during 1930; there was only one Perlis patient (male) in that home at the end of the year.

One South Indian was repatriated to India through the Labour Office at Penang. During the year under review, 10 serious cases were transferred to General Hospital, Alor Star.

#### BUILDINGS.

A cement trough for disinfecting bed boards was constructed during this year. The long drain at the entrance to the hospital compound was converted into a cement drain during the same period. Some of the buildings were painted.

## APPENDIX—A.

RETURN OF SICK OF THE INDOOR PATIENTS OF THE GENERAL HOSPITAL,  
PERLIS, FOR THE YEAR 1930 A. D.

Specific Diseases	Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
<b>INFECTIVE DISEASES.</b>									
Dysentery Amoebic	...	7	7	5	...	...	1	1	
" Bacillary	...	3	3	2	...	...	1	1	
Enteric Fever	...	2	4	3	...	...	1	1	
Erysipelas	...	2	2	1	...	...	1	1	
Gonorrhœa	...	2	11	13	12	...	...	1	
Gonorrhœal Rheumatism	...	4	4	4	...	...	...	...	
" Conjunctivitis	...	1	1	1	...	...	...	...	
" Epididymitis	...	4	4	4	...	...	...	...	
" Arthritis	...	1	1	1	...	...	...	...	
" Fibrositis	...	1	1	...	...	...	...	1	
" Synovitis	...	1	1	...	...	...	...	1	
Influenza	...	3	3	3	...	...	...	...	
<b>Malaria :—</b>									
(a) Benign Tertian	3	158	161	151	...	1	...	9	
(b) Quartan	4	4	4	3	...	...	1	...	
(c) Malignant Tertian	8	126	134	115	...	1	12	6	
(d) Mixed Infection	2	41	43	38	...	1	2	2	
(e) Type undiagnosed	27	27	26	...	1	...	...	...	
(f) Chronic Malaria	1	4	5	4	...	...	...	1	
Measles	...	1	1	1	...	...	...	...	
Pneumonia	...	31	31	17	...	...	14	...	
Pyæmia	...	1	1	...	...	...	1	...	
Pyrexia of uncertain origin	10	10	10	...	...	...	...	...	
Rheumatism	...	8	8	6	...	...	...	2	
<b>Syphillis :—</b>									
(a) Primary	...	3	3	3	...	...	...	...	
(b) Secondary	...	2	2	2	...	...	...	...	
(c) Tertiary	...	11	11	11	...	...	...	...	
Tetanus	...	1	1	...	...	...	...	1	
<b>Tuberculosis :—</b>									
Tubercular glands, neck	...	1	1	...	...	...	1	...	
Pulmonary Tuberculosis	2	40	42	34	...	1	7	...	
Tuberculosis of the vertebral column	...	1	1	1	...	...	...	...	
Vaccinia	...	1	1	1	...	...	...	...	
Yaws	...	8	8	8	...	...	...	...	
<b>INTOXICATIONS.</b>									
Opium Intoxication	...	4	4	4	...	...	...	...	
<b>CERTAIN MORBID CONDITIONS INCIDENT TO VARIOUS PARTS.</b>									
New growth, Malignant	...	1	1	1	...	...	...	1	

Specific Diseases		Remained	Admitted	Total	Discharged	Transferred	Abscended	Died	Remaining	Remarks
<b>DISEASES OF THE NERVOUS SYSTEM.</b>										
Nerves :—										
Neuritis	...	...	...	3	3	3	...	...	...	...
Spinal Cord and Membranes :—										
Myelitis	...	...	...	2	2	...	...	...	...	2
Nervous Disorders :—										
Epilepsy	...	...	...	2	2	2	...	...	...	...
Hemiplegia	...	...	1	...	1	1	...	...	...	...
Paraplegia	...	...	2	...	2	2	...	...	...	...
Mental Diseases :—										
Idiocy	...	...	1	1	2	2	...	...	...	...
Mania	...	...	...	6	6	4	1	...	...	1
Melancholia	...	...	...	4	4	3	...	1	...	...
Observation	...	...	...	1	1	...	...	1	1	...
<b>DISEASES OF THE EYE.</b>										
Conjunctivitis	...	...	...	4	4	4	...	...	...	...
Ulcer of cornea	...	...	1	1	2	2	...	...	...	...
Panophthalmitis	...	...	...	1	1	...	1	...	...	...
Phthisis bulbi	...	...	...	1	1	1	...	...	...	...
<b>DISEASES OF THE EAR.</b>										
Otitis Externa	...	...	...	1	1	1	...	...	...	...
" Media	...	...	...	1	1	1	...	...	...	...
Acute Mastoiditis	...	...	...	1	1	...	1	...	...	...
<b>DISEASES OF THE CIRCULATORY SYSTEM.</b>										
Double Aortic	...	...	...	1	1	...	...	...	1	...
" Mitral	...	...	...	4	4	4	...	...	...	...
Mitral Regurgitation	...	1	...	...	1	1	...	...	...	...
" Stenosis	...	...	...	1	1	1	...	...	...	...
Myocarditis	...	...	1	9	10	4	...	...	4	2
<b>DISEASES OF THE RESPIRATORY SYSTEM.</b>										
Asthma	...	...	1	12	13	13	...	...	...	...
Bronchitis	...	...	...	15	15	15	...	...	...	...
Broncho-pneumonia	...	...	4	18	22	17	...	...	4	1
Empyema	...	...	...	1	1	...	...	...	1	...
Pleurisy	...	...	...	3	3	3	...	...	...	...
<b>DISEASES OF THE DIGESTIVE SYSTEM.</b>										
Appendicitis	...	...	...	2	2	1	1	...	...	...
Cancrum Oris	...	...	...	1	1	1	...	...	...	...
Cirrhosis of Liver	...	...	...	2	2	...	...	...	2	...
Colic Intestinal	...	...	...	13	13	11	...	1	...	1
Diarrhoea	...	...	...	1	1	1	...	...	...	...
Diarrhoea Infantile	...	...	...	2	2	...	...	...	2	...
Duodenal ulcer	...	...	...	2	2	1	...	...	...	1
Enteritis	...	...	1	11	12	12	...	...	...	...

Specific Diseases		Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks									
<b>DISEASES OF THE DIGESTIVE SYSTEM—(Contd.)</b>																			
Hæmorrhoids	...	...	2	2	2	...	...	...	...	...									
Hepatitis	...	...	2	2	2	...	...	...	...	...									
Hernia	...	...	1	1	1	1	1	1	1	1									
Inflammation of Pharynx	...	...	8	8	8	8	8	8	8	8									
Intussusception	...	...	1	1	1	1	1	1	1	1									
Jaundice	...	...	2	2	2	2	2	2	2	2									
Peritonitis-Ruptured Appendix	...	...	2	2	2	1	1	1	1	1									
Quinsy	...	...	1	1	1	1	1	1	1	1									
Sprue	...	...	1	1	1	1	1	1	1	1									
<b>DISEASES OF THE LYMPHATIC SYSTEM.</b>																			
Adenitis	...	...	2	2	2	2	2	2	2	2									
Bubo	...	...	2	2	2	2	2	2	2	2									
Suppuration of glands	...	...	1	1	1	1	1	1	1	1									
<b>DISEASES OF THE URINARY SYSTEM.</b>																			
Cystitis	...	...	3	3	3	3	3	3	3	3									
Nephritis	...	...	14	14	14	9	9	9	9	9									
Retention of urine	...	...	1	1	1	1	1	1	1	1									
<b>DISEASES OF THE GENERATIVE SYSTEM.</b>																			
<i>Male.</i>																			
Stricture urethra	...	...	1	1	1	1	1	1	1	1									
<i>Female.</i>																			
Cystocele	...	...	1	1	1	1	1	1	1	1									
Dysmenorrhœa	...	...	1	1	1	1	1	1	1	1									
Menorrhagia	...	...	1	1	1	1	1	1	1	1									
Retroflexion of uterus	...	...	1	1	1	1	1	1	1	1									
Tumour-uterus-fibroids	...	...	1	1	1	1	1	1	1	1									
<b>AFFECTIONS CONNECTED WITH PREGNANCY AND PARTURITION.</b>																			
Abortion	...	...	3	3	3	3	3	3	3	3									
Albuminuria complicating pregnancy	...	...	1	1	1	1	1	1	1	1									
Labour Natural	...	...	13	13	13	11	11	11	11	11									
Labour Difficult	...	...	2	2	2	2	2	2	2	2									
Labour Premature	...	...	1	1	1	1	1	1	1	1									
Pregnancy Waiting case	...	...	3	3	3	3	3	3	3	3									
Prematurity	...	...	1	1	1	1	1	1	1	1									
Puerperal Sepsis	...	...	3	3	3	3	3	3	3	3									
<b>DISEASES OF THE ORGANS OF LOCOMOTION.</b>																			
Osteomyelitis	...	...	1	1	2	2	2	2	2	2									
Synovitis	...	...	1	1	2	2	2	2	2	2									
<b>DISEASES OF THE CONNECTIVE TISSUE.</b>																			
Abscess	...	...	...	21	21	21	21	21	21	21									
Cellulitis	...	...	2	2	4	4	4	4	4	4									
Gangrene	...	...	1	...	1	1	1	1	1	1									
Myositis	...	...	...	2	2	2	2	2	2	2									
Sinus	...	...	1	...	1	1	1	1	1	1									

Diseases		Remained	Admitted	Total	Discharged	Transferred	Absconded	Died	Remaining	Remarks
DISEASES OF THE SKIN.										
Boils	...	...	5	5	5	...	...	...	...	...
Carbuncle	...	...	1	1	1	...	...	...	...	...
Eczema	...	...	1	1	1	...	...	...	...	...
Eruptions Purpuric	...	...	1	1	1	...	...	...	...	...
Pemphigus	...	...	1	1	1	...	...	...	...	...
Ulcers	...	1	80	81	77	...	2	...	2	...
INJURIES.										
Bruises	...	...	2	2	2	...	...	...	...	...
Burns	...	...	5	5	5	...	...	...	...	...
Cobra bite	...	...	1	1	1	...	...	...	...	...
Contusions	...	...	9	9	8	...	...	...	1	...
Concussion of brain	...	...	1	1	1	...	...	...	...	...
Dog-bite	...	...	2	2	...	...	...	...	2	...
Fracture simple	...	...	3	3	3	...	...	...	...	...
Fracture compound	...	...	5	5	3	2	...	...	...	...
Fracture compound depressed vault of skull	...	...	1	1	...	1	...	...	...	...
Fracture base of skull	...	...	1	1	...	...	...	1	...	...
Sprains	...	...	2	2	2	...	...	...	...	...
Wounds	...	3	70	73	67	...	2	1	3	...
POISONS.										
Mushroom poisoning	...	...	1	1	1	...	...	...	...	...
PARASITES.										
Ankylostomiasis	...	1	44	45	39	...	...	1	5	1
Ascariasis	...	...	16	16	15	...	...	1	...	...
Tænia Solium	...	...	1	1	1	...	...	...	...	...
Ring worm	...	...	1	1	1	...	...	...	...	...
Scabies	...	...	4	4	4	...	...	...	...	...
Tinea Versicolor	...	...	1	1	1	...	...	...	...	...
Under observation	...	...	24	24	23	...	...	...	1	...
For sake of child, mother, etc....	...	1	37	38	37	...	...	...	1	...
Total	...	45	1,074	1,119	977	11	12	67	52	
Nationalities.										
Chinese	...	38	595	633	542	4	7	51	29	...
Indians	...	3	280	283	260	2	1	10	10	...
Malays	...	4	186	190	164	5	3	5	13	...
Javanese	...	2	2	2	2	...	...	...	...	...
Siamese	...	11	11	9	...	1	1	...	...	...
Total	...	45	1,074	1,119	977	11	12	67	52	

Percentage of deaths to total treated 6.

Total number of cases which proved fatal within 48 hours of admission 27.

Percentage of deaths to total treated excluding deaths occurring within 48 hours of admission 3.66.

Total number of cases which proved fatal within 24 hours of admission 15.

## APPENDIX—B.

*Laboratory Work.*

Specimen	Positive	Negative	Total
Blood (Malaria)	618	1,791	2,409
Pus	29	35	64
Eye Smear	12	18	30
Nasal Smear	...	13	13
Cerebro-spinal fluid	...	2	2
Sputum	102	228	330
Stool	1,256	368	1,624
Urine	194	918	1,112
Total	2,211	3,373	5,584

## APPENDIX—C.

*Return of Sick of Prisoners admitted into Kangar Hospital, in 1930 A. D.*

Diseases					Cases	Deaths
Dysentery Amboebic	...	...	...	...	1	...
Influenza	...	...	...	...	1	...
<i>Malaria</i>						
Benign Tertian	...	...	...	...	3	...
Malignant Tertian	...	...	...	...	3	...
Type undiagnosed	...	...	...	...	2	...
Pyrexia of uncertain Origin	...	...	...	...	4	...
Pulmonary Tuberculosis	...	...	...	...	1	...
Opium Intoxicatien	...	...	...	...	1	...
Bronchitis	...	...	...	...	2	...
Colic Intestinal	...	...	...	...	3	...
Enteritis	...	...	...	...	1	...
Pharyngitis	...	...	...	...	5	...
Abscess	...	...	...	...	2	...
Sinus	...	...	...	...	1	...
Boils	...	...	...	...	1	...
Sprain	...	...	...	...	1	...
Ascariasis	...	...	...	...	2	...
Total					34	...

## APPENDIX—D.

*Deaths in Perlis according to Mukims and Nationality. 1930 A. D.*

No.	Mukim	Malays		Chinese		Indians		Siamese		Total		Total	
		M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
1	Abi	...	16	12	...	...	...	...	...	16	12	28	
2	Arau	...	55	62	5	7	2	...	4	7	66	76	142
3	Bintong	...	17	16	2	...	...	...	...	19	16	35	
4	Chuping	...	24	11	...	1	...	...	5	4	29	16	45
5	Kuala Perlis	...	6	15	8	2	...	...	...	...	14	17	31
6	Oran	...	20	17	2	1	...	...	...	...	22	18	40
7	Padang Malau	...	16	29	18	9	...	1	1	1	35	40	75
8	Paya	...	62	52	54	12	6	4	...	2	122	70	192
9	Sanglang	...	35	22	11	5	...	...	1	...	47	27	74
10	Utan Aji	...	12	9	1	...	...	...	...	...	13	9	22
11	Utan Gelam	...	40	32	4	3	...	...	1	...	45	35	80
	Total	...	303	277	105	40	8	5	12	14	428	336	764

## APPENDIX—E.

*Distribution of deaths according to Mukims and Diseases.*

Mukims													Total									
	Fevers			Respiratory Diseases			Diarrhoea, Dysentry, etc.			Oedema (Basal)			Old Age		Infantile Convulsions		Deaths after abortion or child birth		Injuries and accidents		Other Causes	
Abi	...	...	...	16	2	1	1	1	7	1	...	...	...	...	...	...	...	...	28			
Arau	...	...	...	47	36	5	4	18	22	6	1	1	3	3	142							
Bintong	...	...	...	15	4	3	2	4	5	1	...	...	1	1	35							
Chuping	...	...	...	19	5	3	1	6	10	...	1	1	...	...	45							
Kuala Perlis	...	...	...	14	3	2	1	2	6	1	1	1	1	1	31							
Oran	...	...	...	13	7	...	3	5	8	3	...	...	1	1	40							
Padang Malau	...	...	...	43	8	2	2	4	9	2	1	1	4	4	75							
Paya	...	...	...	84	43	9	9	9	20	3	7	8	8	8	192							
Sanglang	...	...	...	40	11	...	...	4	17	...	...	...	2	2	74							
Utan Aji	...	...	...	6	4	1	2	3	5	...	...	...	1	1	22							
Utan Gelam	...	...	...	29	16	4	4	6	21	...	...	...	...	...	80							
Total	...	326	139	30	29	68	124	16	11	21	764											

## APPENDIX—F.

*Infantile Mortality in Perlis.*

Mukims	Malays		Chinese		Indians		Siamese		Total		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.		
Abi	...	1	1	...	...	...	...	...	1	1	2	
Arau	...	10	11	...	2	2	...	1	...	13	13	26
Bintong	...	3	6	...	...	...	...	...	3	6	9	
Chuping	...	5	3	...	...	...	...	2	1	7	4	11
Kuala Perlis	...	1	3	...	...	...	...	...	1	3	4	
Oran	...	1	3	...	...	...	...	...	1	3	4	
Padang Malau	...	6	5	...	4	...	1	...	6	10	16	
Paya	...	15	9	5	3	3	2	...	23	14	37	
Sauglang	...	3	4	5	3	...	...	...	8	7	15	
Utan Aji	...	1	1	...	...	...	...	...	1	1	2	
Utan Gelam	...	10	8	1	...	...	...	...	11	8	19	
Total	...	56	54	11	12	5	3	3	75	70	145	

## APPENDIX—G.

*Births and Still-Births in Perlis.*

Mukims	BIRTHS							STILL BIRTHS				
	Eurasians	Malays	Chinese	Indians	Siamese	Total	Malays	Chinese	Indians	Siamese	Total	
Abi	...	32	...	...	...	32	...	...	...	...	...	
Arau	...	148	21	9	14	192	13	1	...	...	14	
Bintong	...	44	2	...	...	46	3	...	...	...	3	
Chuping	...	81	3	5	22	111	3	...	...	...	3	
Kuala Perlis	...	78	15	...	...	93	1	1	...	...	2	
Oran	...	51	5	4	2	62	1	1	...	...	2	
Padang Malau	...	76	16	1	3	96	2	1	1	...	4	
Paya	...	1	167	48	2	219	...	5	5	...	10	
Sanglang	...	121	26	...	...	147	2	2	...	...	4	
Utan Aji	...	66	1	...	1	68	...	...	...	...	...	
Utan Gelam	...	130	13	...	...	143	...	...	...	...	...	
Total	...	1	994	150	21	43	1,209	25	11	6	42	

Males	...	...	614	Males	...	...	20
Females	...	...	595	Females	...	...	22
Total Births	...	1,209		Total Still-Births	...	42	

## APPENDIX—H.

*Distribution of births, infantile mortality and total deaths according to Mukims.*

Mukims		Total Deaths	Births (excluding Still- births)	Infantile mortality	Still-births
Abi	...	28	32	2	...
Arau	...	142	192	26	14
Bintong	...	35	46	9	3
Chuping	...	45	111	11	3
Kuala Perlis	...	31	93	4	2
Oran	...	40	62	4	2
Padang Malau	...	75	96	16	4
Paya	...	192	219	37	10
Sanglang	...	74	147	15	4
Utan Aji	...	22	68	2	...
Utan Gelam	...	80	143	19	...
Total	...	764	1,209	145	42

## APPENDIX—I.

*Deaths in Mukim Arau according to Sex and Diseases.*

117 deaths were recorded.

				Males.	Females.
Fevers	..	..	..	.. 20	22
Respiratory Diseases	..	..	..	.. 15	13
Diarrhoea, dysentery, etc.	..	..	..	.. 1	2
Oedema (Basal)	..	..	..	.. 1	3
Old age	..	..	..	.. 7	9
Convulsions	..	..	..	.. 11	7
Deaths after abortion or labour	..	..	..	..	4
Labour	..	..	..	.. ..	..
Injuries and accidents	..	..	..	.. ..	..
Other causes	..	..	..	.. ..	2
				—	—
			Total	.. 55	62
				—	—

*Deaths in Mukim Arau, according to Sex and ages.*

				Males.	Females.
1 year and under	..	..	..	.. 10	11
5 years and under	..	..	..	.. 12	7
15 „ „ „	..	..	..	.. 3	5
25 „ „ „	..	..	..	.. 1	6
35 „ „ „	..	..	..	.. 7	2
45 „ „ „	..	..	..	.. 5	8
50 „ „ „	..	..	..	.. 1	6
55 „ „ „	..	..	..	.. 2	..
65 „ „ „	..	..	..	.. 6	6
75 „ „ „	..	..	..	.. 3	3
100 „ „ „	..	..	..	.. 4	7
Above 100 years	..	..	..	.. 1	1
			Total	.. 55	62
				—	—

## APPENDIX—J.

## METEOROLOGICAL RETURN OF HOSPITAL, PERLIS, FOR 1930 A.D.

MONTHS, 1930 A.D.	TEMPERATURE			HYGROMETER			Total Rainfall during 24 hours	Greatest Rainfall during 24 hours
	Mean dry bulb	Minimum	Range	Mean wet bulb	Vapour tension	Dew point		
January	... ...	82.9	71.5	21.1	75.2	73.6	70.1	65.5 .01
February	... ...	83.3	95.3	72.1	23.2	74.9	71.6	62.9 1.86
March	... ...	84.1	95.0	73.6	21.4	76.6	77.4	66.2 8.13 2.48
April	... ...	84.7	94.6	74.3	20.3	78.5	85.4	74.5 71.6 4.70 1.18
May	... ...	83.8	91.9	74.5	17.4	79.2	90.0	76.1 77.7 4.76 1.72
June	... ...	82.9	90.8	73.8	17.0	78.1	86.8	75.0 77.2 5.41 1.56
July	... ...	82.3	89.4	74.5	14.9	78.5	89.7	76.0 81.3 6.56 1.50
August	... ...	81.8	89.5	73.8	15.7	78.0	88.0	75.4 81.2 9.92 1.80
September	... ...	82.1	88.4	74.0	14.4	78.0	87.4	75.2 79.8 9.16 2.07
October	... ...	81.6	88.9	73.6	15.3	77.6	86.5	74.9 80.3 13.80 2.53
November	... ...	79.7	86.1	73.4	12.7	76.6	85.1	74.4 84.0 8.07 1.09
December	... ...	81.2	88.5	73.0	15.5	77.3	86.0	74.7 80.8 7.96 3.29

Lowest Shade Temperature=70° on 1st, 4th, 7th, 16th, 21st, and 22nd, Jan., on 7th, 8th, 9th, and 11th, Feb., on 7th, June, and on 27th, December.

Highest Shade Temperature=99° on 22-2-30.





